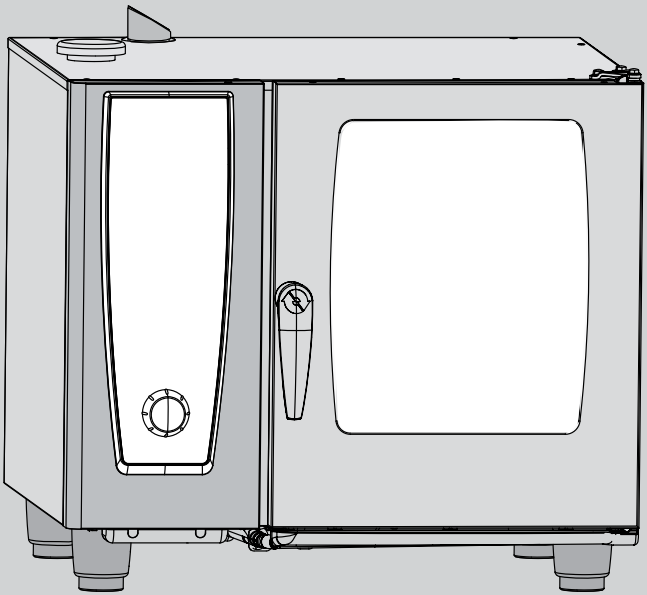
Original
Installation Manual



Explanations of the icon's

Danger!
Immediate dangerous situation, that can endanger severe injury or death

Warning!
Possibly dangerous situation, that possibly can endanger severe injury or death.

Caution!
Possibly dangerous situation, that can endanger minor injury.

Corrosive substances

Fire hazard!

Danger of burning!

Attention: Inobservance can cause material damages.

Tips and tricks for installation

Danger!
High voltage.
Caution danger of life
Inobservance can endanger severe injury or death.

WARNING

Wrong installation, service, maintenance or cleaning as well as unauthorized changes on the unit can cause damages, injuries or even death. Read the installation manual carefully before installing the unit. This unit may only be used for preparing food in commercial kitchens. Every other usage is against definition and therefore dangerous.

WARNING

Only gas units
Waste gases!
- If the unit is installed underneath an extraction hood, it must be made sure that the hood is switched on during operation of the unit

Fire hazard!
- If the gas unit is connected to a chimney, it must be made sure that the exhaust line will be cleaned on a regular basis subject to local regulations (For this purpose also contact the installer)
- Don't put any material on the exhaust pipes of the unit
- The area underneath the unit may not be blocked or closed by any material
- The unit may only be operated in a calm environment

DANGER

Danger of explosion
Safety measures in case of smell of gas:
- Immediately close the gas supply.
- Don't touch any electrical switching element
- ventilation of the room.
- Avoid open flame or sparks
- Use an external telephone and inform your local gas authority (in case the local gas authority can not be reached inform the operation centre of the fire brigade).

Dear customer

The warranty excludes glass damage, light bulbs and sealing material as well as damage caused by improper use, installation, maintenance, repair by untrained/unqualified personnel and scaling of components
We reserve the right to make technical changes in the interest of progress!
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Dealer

Installer

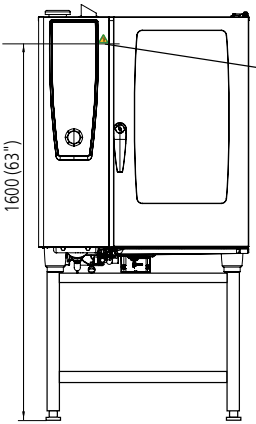
Quote in the event of a query:

Appliance model:

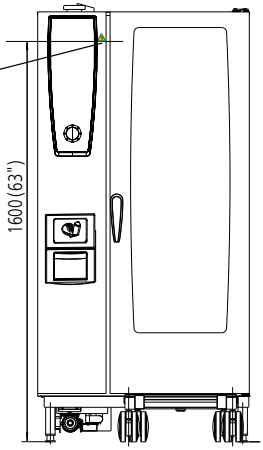
Appliance no.:

Set to gas type:

Your appliance was checked by:



Safety stickers „Max. rack height for containers with liquid“ are in the Starter Kit. After Installation of the unit, this sticker has to be fixed to the unit in a height of 1600 mm (see examples)



WARNING

Risk of scalding!
To avoid scalding, do not use loaded containers with liquids or cooking goods which becomes fluid by heating in higher levels than those which can easily be monitored. (DIN: IEC 60335-2-42)

Attention:

The named standards are valid for Germany. In all other countries follow the local standards and valid instructions. Damages based on installation not complying with the directives given hereunder are not covered by warranty terms.
The requisite connections (water, electricity, gas) must only be carried out by suitably qualified technicians in compliance with local regulations.

Liability

Installation and repair works, not carried out by qualified personnel or not using original spare parts, as well as every technical change on the unit which were not authorised by the manufacturer will lead to an expiration of the warranty and the liability of the manufacturer.

The conformity of the unit references to the complete appliance at the time of shipment.
In case function extension and/or connection of additional functions are made the user is responsible for an extended conformity.

Australian Supplement to Gas Installation

- To be installed only by authorised person in accordance with AS 5601, local authority, gas, electricity, any applicable statutory regulations and manufacturer requirements.
- Particular attention should be given to relevant requirements regarding ventilation.
- This appliance is not suitable for use in marine environment.

Check for any transport damage.

Should there be any signs of transport damage, inform your dealer/freight forwarder immediately!

Cleaning of the unit body after installation:

With the cleaning cloth, attached to the door handle, the body of the unit can be cleaned.
As the cleaning cloth is soaked with cleaning agent it can not be used for cleaning of the door glass pane and the operator surface (also follow the hint on the packaging of the cleaning cloth).

Dumping of old units.

At the end of its service life, the unit must not be disposed of with the general waste and must not be placed in the recycling containers at local authority collection points.
We will be happy to help you with the disposal of your unit.

Changing air filter

In case the unit detects a polluted air filter, a message is shown that prompts the operator to change the filter.
When changing the filter the following procedure has to be observed:

Units 6x1/1GN, 6x2/1GN, 10x1/1GN and 10x2/1GN

Air filter article number: 40.03.461

The filter may be changed by the operator. The operator is responsible that the new filter is set in place correctly and that it is not allowed to run the unit without filter. For changing the filter follow the instruction in the operator manual.

Units 20x1/1GN and 20x2/1GN

The filter may only be changed by qualified technical personal

Attention, the hose water protection of 20x1/1GN and 20x2/1GN units is only ensured with correct installed air filter and protective cover.

First time commissioning

When commissioning your new unit for the first time, you will be asked to start an automatic self test. The duration of the self test is approximately 45 minutes and is necessary to adapt the unit to the specific environmental conditions.

- Remove packing material from the interior cabinet. Check air baffle and racks for correct positioning and fixing.
- Units 6X1/1, 10X1/1, 6X2/1 and 10X2/1 put a GN container (e.g. 20 mm deep) upside down into the center rail of the racks.
- Units 20X1/1 respec. 20X2/1 GN two containers have to be put into the mobile trolley of the unit. One container each upside down to the center in front of each fan wheel.
- Cabinet door must not be opened during the complete self test

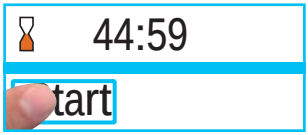
6X1/1 / 10X1/1 / 6X2/1 / 10X2/1 GN

20X1/1 / 20X2/1 GN

CAUTION

Fire hazard!
Remove packing material, starter kit as well as containers and grids from interior cabinet.

close cabinet door



Press Start-key, Self test is running, remaining running time is shown

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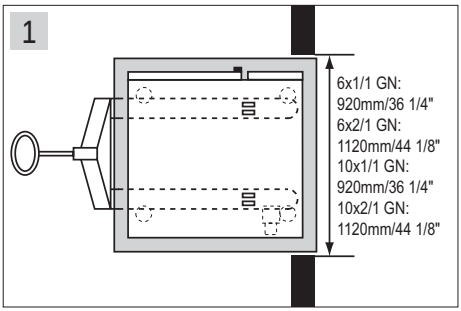
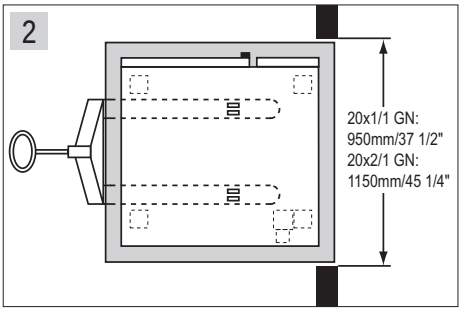
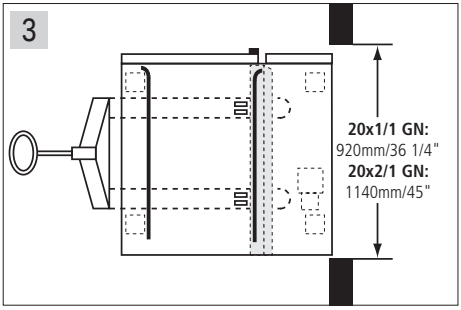
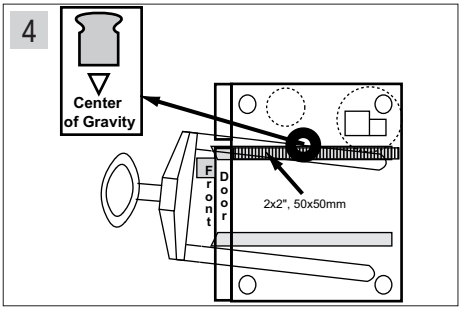








Transport of units

Transport of units using a pallet pic. 1,2

Transport of units without a pallet, 20x1/1 GN and 20x2/1 GN units only. Put a piece of wood between pallet jack and left guide rail of the trolley pic. 3, 4

CAUTION

Unit can tilt
Danger of injury
Make sure that the unit is secured against tilting, when transporting it.

Remove all containers/mobile oven racks from the cabinet. For floor model, remove corner mountings from the pallet. Take unit off the pallet.

CAUTION

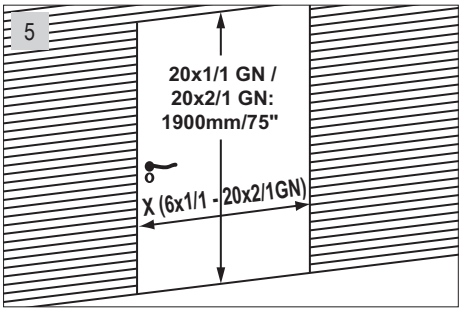
Observe the weight of the units.
Danger of injury
Use carrying aid to avoid injuries.
Wear safety boots.

Weight see technical data on page 24

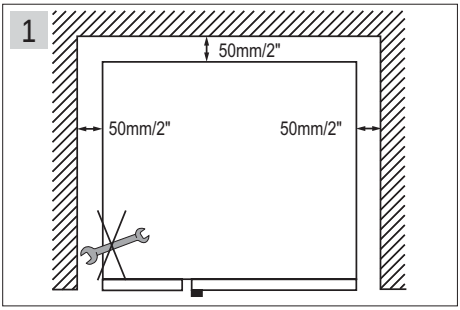
Observe door height pic. 5

X= Required door width when transporting units without pallet:

6x1/1GN	840 mm (33 1/8”)
6x2/1GN	1040 mm (41”)
10x1/1GN	840 mm (33 1/8”)
10x2/1GN	1040 mm (41”)
20x1/1GN	920 mm (36,1/4”)
20x2/1GN	1140-mm (45“)



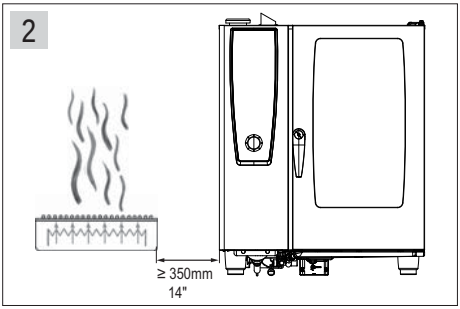
Recommended minimum clearance



Minimum clearance left/ right/ rear 50 mm (2”) (except floor models). pic. 1

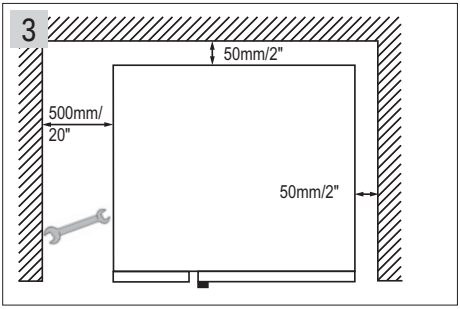
On floor models (20x1/1 GN and 20x2/1 GN) there must be a minimum clearance of 500 mm (approx. 20”) on the left side of the unit, for installing the power cable

Minimum clearance when there are heat sources on the left-hand side is 350 mm (14”). pic 2



Attention:
A safety shut down can occur if the ambient temperature on the left hand side of the unit is too high.

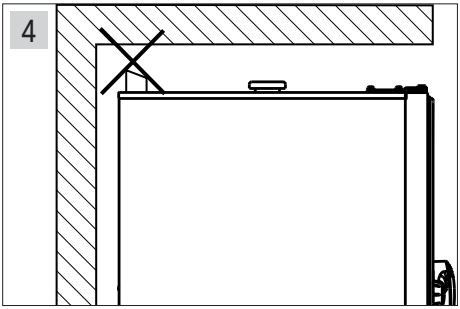
Option:
Heat shield see page 25



We recommend a distance of 500 mm (20”) on the left hand side of the unit for carrying out maintenance work. pic. 3

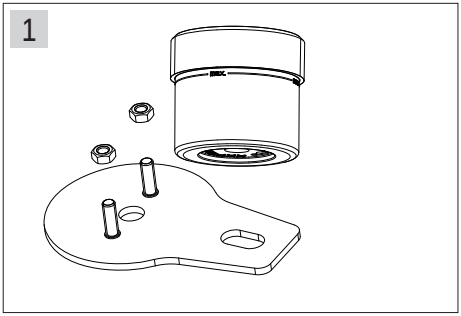
Attention:
- Do not install deep fat fryer at the rear side of the unit.
- The units must only be installed in frost-free rooms.

- Should it not be possible to direct the exhaust air of the exhaust pipe into a ventilated ceiling or an exhaust hood an open space of 500 mm above the unit is required. This space is sufficient for installing a condensation breaker that can direct the exhaust air to an uncritical area. (Condensation breaker see page 26) pic. 4

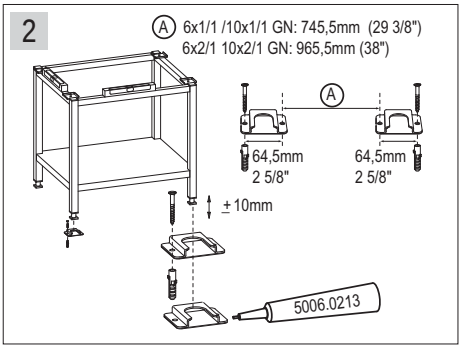


Installation type 6x1/1, 6x2/1, 10x1/1, 10x2/1 GN

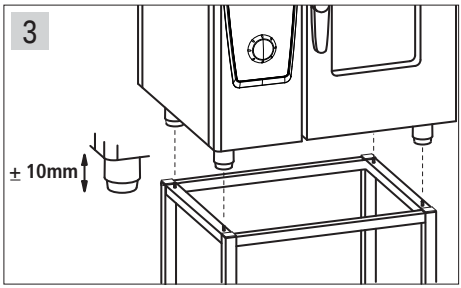
1



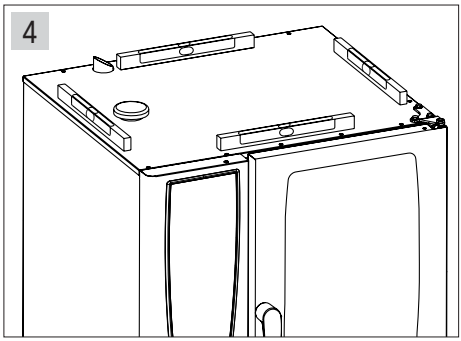
2



3



4



Because of safety reasons table units shall only be installed on original stands of the manufacturer.
In this case the maximum rack height is 1600 mm (63")

If Gas units are installed on a table or on the kitchen floor (combi duo) then:

a) press the retaining plates (ET-No.:12.00.519) into the lower part of the pedestal and fasten with the enclosed nuts.

b) the plate must be fitted to the surface using either screws and dowels or studs and nuts or the special adhesive. pic. 1

The retaining plates are not included in the scope of supply

Attention: The centre height of the drain pipes 88 mm (3 1/2”). When installing combi duo observe the drain height of the bottom unit.

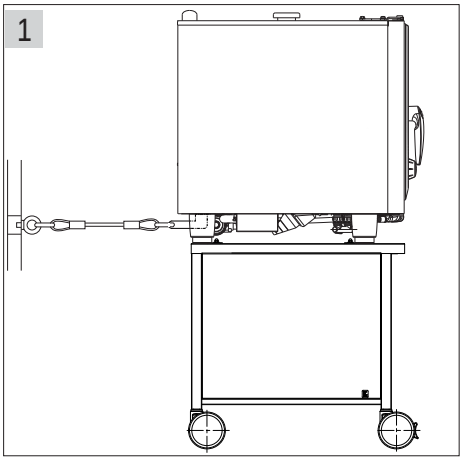
Option:
Using 110 mm (4 3/8”) legs and height adjustable transport trolley for extended space underneath unit. See page 25

Stands for gas appliances must be fixed to the floor using the fixing set part no.: 8700.0317 either with screws and dowels, or with the special adhesive supplied. pic. 2
Fixing set is not included in the scope of supply,

Slide the stand into the fixing brackets and level it.

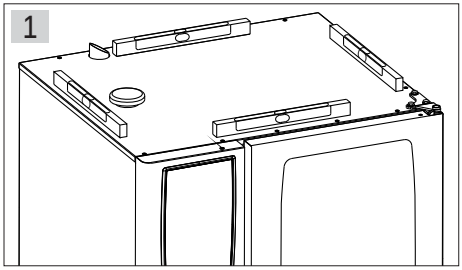
Place the unit on the stand. The feet of the unit must be secured by means of the locating pins of the stand pic. 3

Ensure that the unit is level pic. 4

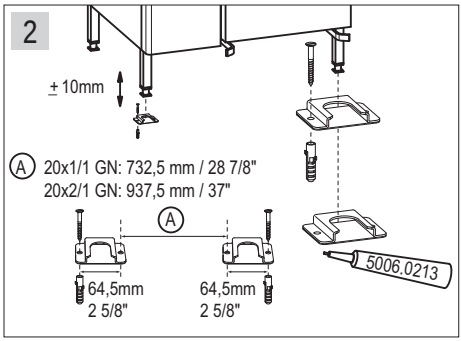


Attention:
If the unit is mounted on a mobile stand or base cabinet, the unit must be additionally secured against slipping by a chain or cable in order to prevent damage to the electricity, water or gas supply line. pic. 1

Installation Type 20x1/1 GN, 20x2/1 GN

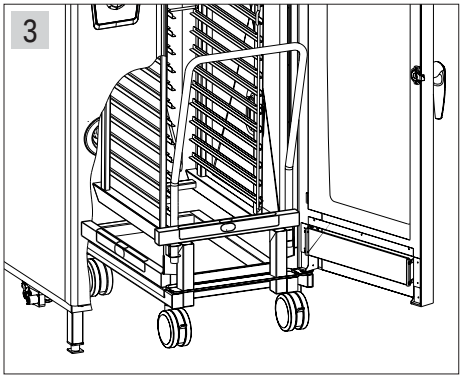


Installation type 20x1/1 GN, 20x2/1 GN
Ensure that the unit is level pic. 1



Fix the floor locks, (supplied with the fixing set) to the floor with either screws and pins or with the special adhesive. pic. 2

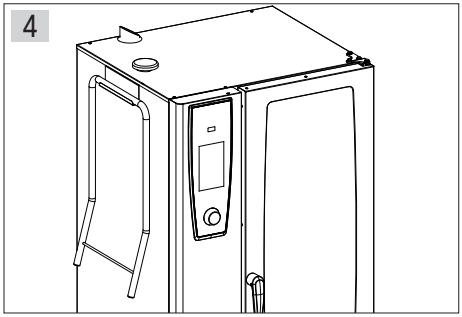
Next slide the unit into the floor locks pic. 2



The mobile oven rack must be level when standing inside the unit pic. 3

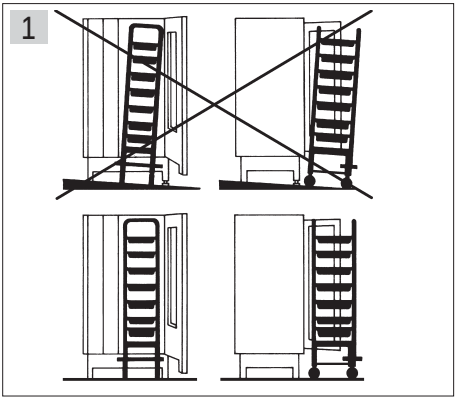
Attention: Observe height of the drain pipe

Option:
Using leg extension for more space underneath unit. Install height extension for mobile oven rack see page 26



For a safe storing of the trolley handle, during cooking, an angle bracket is delivered with the unit. This angle bracket has to be mounted to the left side panel of the unit. For mounting remove the left side panel and slide the angle bracket on the top edge of the panel to the middle.
Now the handle can be stored at the unit pic. 4

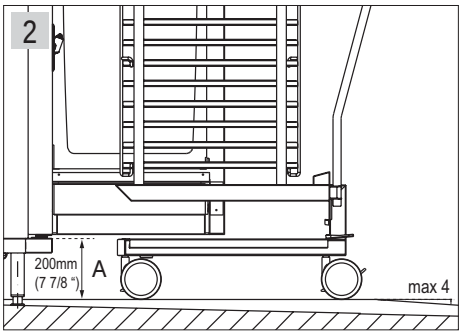
Levelling mobile oven racks 20x1/1 and 20x2/1 GN



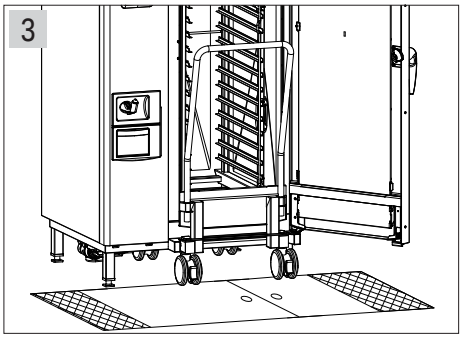
If the floor is not level, an access ramp (not supplied) will be required. The incline must not exceed 4°. pic. 1,2

WARNING

Hot cooking liquid
Risk of scalding
If the incline exceeds 4°, hot cooking liquid can slop out of the cooking containers

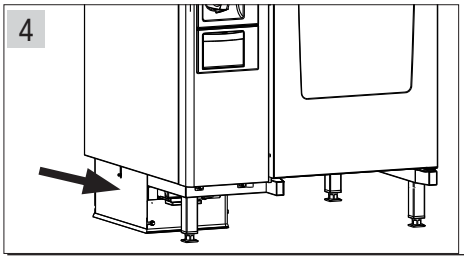


Attention:
An incorrect levelled trolley can cause malfunction during operating the unit (e. g. during Cleanjet)
Set unit legs that a height of 200 mm (7 7/8")
is reached pic. 2 "A"
Valid for SCC_WE units:
Check unit door for tightness by activating cleaning program "rinse without tabs"



Option:
Access ramp see page 26

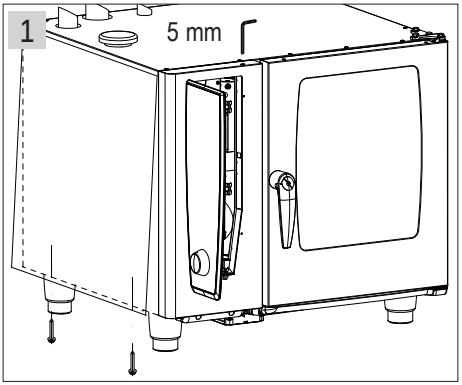
If there is a drain grill in front of the floor unit, a ramp should be placed over it to enable the mobile oven rack to be used. pic. 3

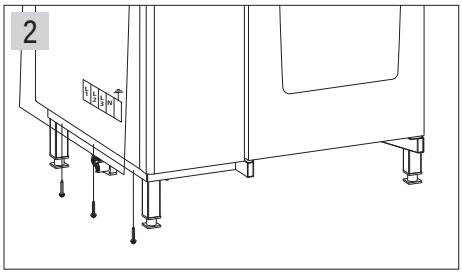


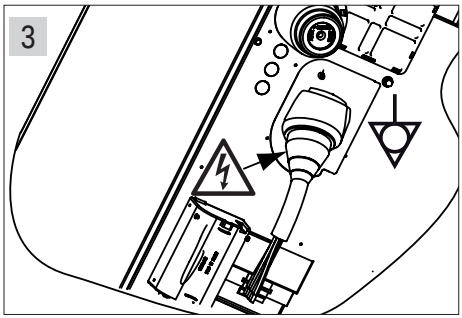
Attention:
Avoid steam sources in the ambient area of the air filter. Sucked in humidity can cause malfunction to the unit.

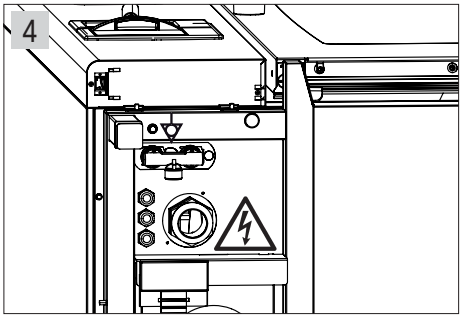
Because of hygienic reason and following the "NSF standard 4" respectively "DIN EN 203-3" all units 20x1/1 GN respectively 20x2/1 GN must be equipped with a cover over ball valve and care pump. pic. 4
Cover kit and corresponding installation instruction are delivered with the unit

Electrical connection









DANGER

High voltage
Danger to life
Observe local regulations and standards during installation

General information see next page

Electrical units

- Each appliance requires an independent fused power supply line
- A permanent electrical connection must be provided for the units.
  Units 6X1/1GN - 20X2/1GN
  Voltage version 3NAC 400V
  Units can either be connected permanent or by using a plug
- Table units (6X1/1 GN - 10X2/1 GN) are equipped with a power cable. The cable comes without plug and is approx. 2,5 m (8 ft) long.

WARNING

Wrong connection can cause electric shock
Danger to life
Observe colour coding of the wires

Attention:
Wrong connection can cause damages (e. g. fan motor)

- Colour coding of wires:
  yellow/green = earth
  blue = neutral
  brown, grey or black = Phase L1, L2, L3
- Floor units 20X1/1 GN and 20X2/1 GN are delivered without power cable
- The main contactor (table units) and the main terminals (floor models) are located in the electrical compartment and are accessible after removing the left side panel. pic. 1/2

Electrical connection

Gas units
- We recommend an independent fused power supply line.
- A permanent electrical connection must be provided for the units.
- All units are equipped with a power cable without plug, approx. 2,5 m (8 ft) long.
- The main terminals are located in the electrical compartment and are accessible after removing the left side panel. pic. 1/2
- Unit should be connected to a fused spur, observe local electrical regulations
- Attention!
  Observe polarity of the mains!
  No burner function with wrong polarity!

WARNING

Wrong connection can cause electric shock
Danger to life
Observe colour coding of the wires

Attention:
Wrong connection can cause damages (e. g. fan motor)
- Colour coding of the power cable:
  yellow/green = earth, blue = Neutral
  brown, grey or black = Phase L1 (L2)

Gas and electrical units

The stud of the equipotential bonding is located on the bottom side, underneath the control panel. Connect the wire of the equipotential bonding to this stud pic. 3/4

General information:
- Follow the installation instructions and the information on the rating plate when connecting the unit.
- Comply with all local regulations and standards!
- We recommend an independent fused power supply line for each appliance.
- Units must be connected to an earth leakage circuit breaker.
- The appliance is equipped with a motor with an integrated frequency converter
- On-site installation: provide accessible all-pole disconnection device with a minimum of a 3 mm contact gap.
- Electric units 10x2/1, 20x1/1 and 20x2/1GN:
  The maximum electrical impedance at the mains connection point is 0,09 ohm
- Special voltages available on request.
- The cross-section of the power cables must be based on the current consumption and on local regulations.
- Applicable standards: EN 60335, IEC 335
- For electrical connection data, see page 28
- Before disconnecting or reconnecting unit. Ensure electrical supply is isolated.
- The circuit diagram is located on the inner side of the left side panel.

For appliance connections, precise dimensions and connection points, see pages 30 and following.

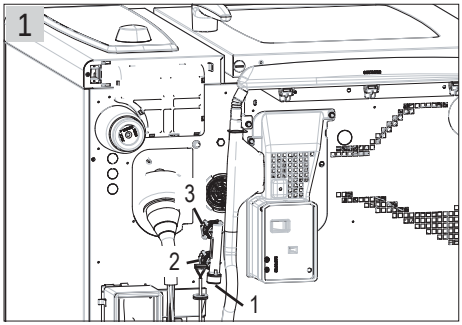
Power cable :
- The exchange of the power cable may only be carried out by the manufacturer, his service agents or similar qualified personal

Electrical units
- Connect an H07RN-F supply cable (minimum), tighten the cable gland and the strain relief
- Connect the supply as follows:
  Grey terminal: L1, L2, L3 (non-phase-sequence-dependent)
  Blue terminal: Neutral (only 3N AC)
  Yellow/green terminal: Earth connection

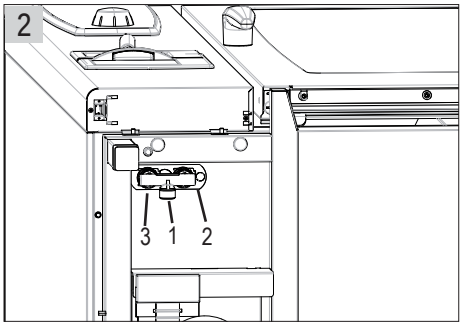
Gas units:
- Units the power cable has to be exchanged a power cable with the following minimum quality has to be used:
  H05 RN-F 3x2,5 mm2

Water connection

6x1/1GN - 10x2/1GN E/G



20x1/1GN - 20x2/1GN E/G



The appliance must be connected to water with drinking water quality. We recommend a maximum water temperature of 30°C.

Legend to water connections valid for: pic. 1
- SelfCookingCenter® whitefficiency table units

1 = Common water supply 3/4”
cold water

In case of split water connection

2 = Cold water, connection 3/4” (quenching)

3 = Treated water connection 3/4”
(steam generator, moistening, cleaning, hand shower,)

Legend to water connections valid for: pic. 2
- SelfCookingCenter® whitefficiency floor units

1 = Common water supply 3/4”
cold water

In case of split water connection

2 = Cold water, max 30°C/86°F, connection 3/4”
(quenching)

3 = Treated water connection 3/4”
(steam generator, moistening, cleaning, hand shower,)

The appliance must be connected to the facility water supply with a supply hose that conforms to EN 61770 resp. IEC 61770 or of similar quality. The water supply hose must fulfil the local or standard hygiene requirements for hoses in drinking water systems.
For water connection only new supply hoses may be used. Old supply hoses must not be reused.
A water supply hose conform to EN 61770 with DVGW drinking water approval can be ordered at RATIONAL (# 2067.0709).

UK only:
WRAS approval IRN R160
To be carried out by the installer:
An approved double check valve or some other no less effective backflow prevention device shall be fitted at the point of connection between the supply and the fitting

Water connection

- Install individual shut-off valve for each appliance
- Rinse the water supply line prior to connection to the unit!
- Connected water pressure must be in the range 150 kPa - 600 kPa, recommended 300 kPa

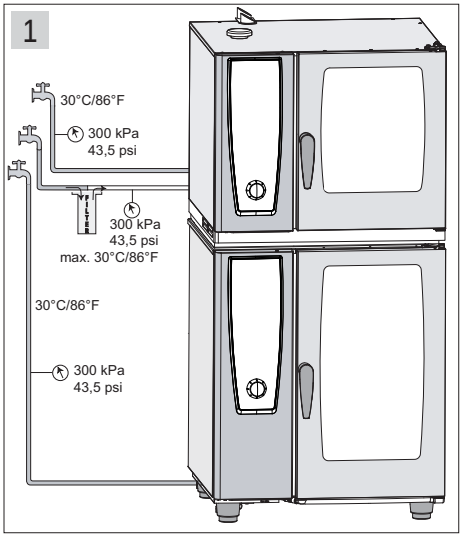
Maximum flow rate for each unit
6x1/1, 10x 1/1: 20 l/min
6x2/1, 10x2/1, 20x1/1, 20x2/1: 25 l/min

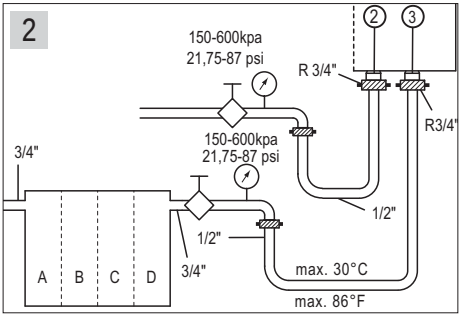
Note:
The manufacturer recommends especially on model CombiMaster® Plus a preventive check of your equipment 6 months after installation to determine actual scale build up. This should be done by a trained technician.

Water treatment:
For filter selection see pages 18/19
Treated water with a water hardness less than 6 °e may not be supplied, because such water can react aggressive and corrosive which can reduce the life cycle of the unit.

Connecting SelfCookingCenter® whitefficiency to water with hardness less than 8,75°e:
When starting the self test (refer to page 6) the customer can choose between two different levels of water hardness. In this case select "water with hardness less than 8,75°e":

Selection of water filter





In most cases it is not necessary to install a filter or water treatment for water supply. The integrated SC-automatic changes the water in the steam generator at regular intervals automatically. However under certain water conditions different filter applications (A, B, C, D) might be necessary.

Please consult your local water supply board for advise on chlorine (Cl2), chloride (Cl-) and hardness of the water

A) Particle filter pic. 1/2

When the water contains sand, iron particles or suspended matter, we recommend a 5-15 µm (micro meter) particle filter:

B) Active carbon filter pic. 1/2

When the level of chlorine (Cl2) in the water exceeds 0.2 mg/l (= ppm) (information available from the water company), an active carbon filter should be installed.

C) Complete De-Ionization pic. 1/2

When the water has a chloride Cl- concentration above 80 mg/l (= 80 ppm), a complete deionization system should be installed to avoid corrosion. Note: Make sure a minimum conductivity of 50 µS/cm (micro Siemens) remains in the water.

D) Water softener: pic. 1/2

Valid for SelfCookingCenter® whitefficiency
These models will remove scale all by itself providing that the units are used as prescribed. This means a water softener is not needed.
Valid for CombiMaster® Plus:
A water softener is recommended when a high level of scale (not containing chloride) is experienced. Systems recommended: H^+ Ion Exchanger. Sodium ion exchangers (as used in dishwashers) must not be used.
As a phosphate dosing system can have negative influence to the water system it must also not be used.
Treated water with a water hardness less than 6 °e may not be supplied, because such water can

Selection of water filter

react aggressive and corrosive which can reduce the life cycle of the unit.

Amongst others the following filter manufacturers offer adequate filter applications:
Brita, Falk.

Important for treated water connection:
Split the water supply to standard and treated water connection for each unit to extend filter capacity!
See pictures 1/2 page 16
Remove T-connection at water inlet
Connect cold untreated water to inlet position “2”
Connect treated water to inlet position “3”

Filter capacity:
Average treated water consumption is as follows (values excluding usage of hand shower)

6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1
3l/h	8 l/h	6,3 l/h	10,4 l/h	12,5 l/h	15 l/h

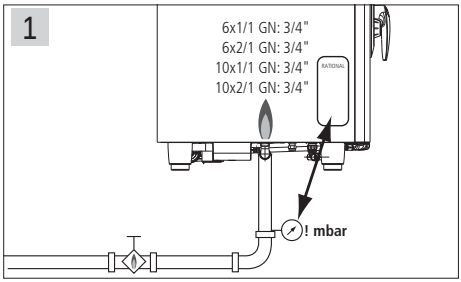
Maximum flow rate 16 l/min

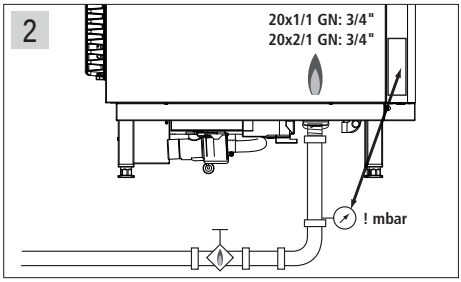
Important for filter connection:
Water supply hose / pipe size 1/2” minimum
Connection to filter : 3/4”

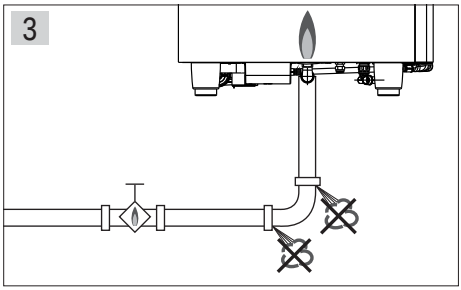
If a combination of filters is fitted, the sequence A-B and C or D of the filters in the direction of flow must be observed pic. 2

Gas connection

Important!
To ensure that the burner settings made at the factory conform with the actual installation conditions, the waste gas (C0, C02) from the steam and hot-air burners must be analysed during commissioning. The corresponding values must be documented inside the unit. If the undiluted C0 values are above 1000 ppm, the burner settings must be checked and if necessary adjusted by engineers trained and certified by the company.







WARNING

Incorrect connection can engender fire hazard!
Danger to life
Observe local regulation

Comply with local gas authority regulations!
Follow installation instructions!

- Check that the gas type supplied is suitable for the unit.
- The diameter of the pipe must comply with local regulations
- Inner thread of gas connection: pic. 1,2
- Gas stop valve supplied for each unit.
- Gas connection with gas outlet socket is possible.
- All gas supply connectors must comply with local regulations.
- The unit must be secured against movement.
- Check the gas supply and gas distribution in the unit line for leakage. pic. 3
- For documentation of the correct installation our installation checklist can be used.
- Automatic direct ignition with ignition monitor.

Attention:

- The unit is only to be connected to the gas supply by a locally approved gas installer. It is vital to ensue that the gas connection pipes as well as the connection pipes for the associated gas metering systems match the stipulated pipe widths.
- If the flow pressure deviates from the specified flow pressure (see table), inform the gas authorities. If the flow pressure of natural gas exceeds 30 mbar (12,04 in w. c.), the unit must not be switched on and the gas supply must be disconnected.
- Attention: The gas parts are designed for a maximum flow pressure of 65 mbar (26,09 in w. c.)

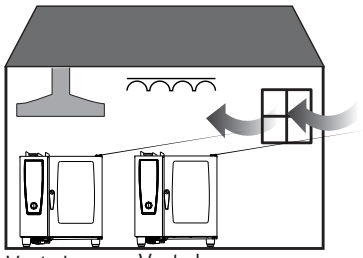
Gas exhaust connection

Type A3, B13, B13BS gas unit
Comply with local gas authority regulations!

DANGER

Gaseous combustion product (CO and CO_2)
Suffocation hazard
The rooms in which these appliances are installed must be well ventilated, in order to prevent an unacceptable build-up of harmful combustion products.

4

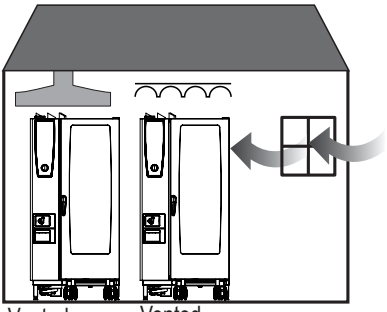


A3 – 6x1/1GN pic. 4

Room air-dependent gas appliance with blower before burners, without draft diverter and rated thermal load < 14 kW. It is not mandatory for the gas delivery to be released to the burners only when the exhaust system is operative.
An up draft system is not required.
When installing gas appliances type A with a total nominal heat load up to 14 kW it is sufficient, if
- the room volume of the installation site is above 2 m³/kW, or
- a door or window to the outside which can be opened is available, or
- a kitchen ventilation system with a minimum discharge volume of 15 m³/h per kW total nominal heat load is used and suitable openings for fresh air are installed.

For UK market can be used when replacing similar equipment in kitchens where installation of the air inlet/extraction was prior to September 2001 & providing there is a documented risk assessment to ensure that there will always be sufficient make-air and extraction available when running the equipment. Please observe Current Gas Regulations.

5



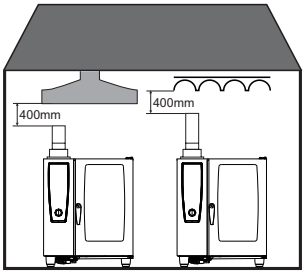
A3 – 10x1/1, 6x2/1, 10x2/1, 20x1/1, 20x2/1 GN pic. 5

Room air-dependent gas appliance with blower before burners, without draft diverter and rated thermal load > 14 kW.
An up draft system is not required.
Flue gases must be lead to the outside using a kitchen venting system. Thereby flue gases of type A gas appliances are blown into the kitchen air and immediate sucked out by the kitchen venting system.

By monitoring the flue gas evacuation it must be made sure, that the gas supply of the burner is only enabled in case the ventilation is ensured.
Required room volume see page 23

Gas exhaust connection

6



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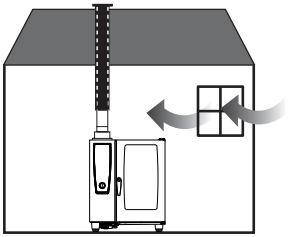

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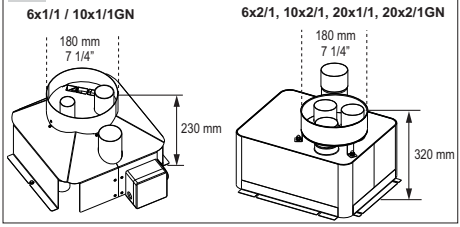


B13 pic. 6

Ambient-air-dependent gas-powered cooking range with fan assisted burners with exhaust collector. The type B13 installation must only be done using the below mentioned original exhaust collector. The exhaust collector is not shipped with the unit, but can be ordered under the following part numbers:

6x1/1	70.00.737	6x2/1	70.00.768
10x1/1	70.00.757	10x2/1	70.00.769
20x1/1	70.00.770	20x2/1	70.00.771

For installation please follow the installation instruction sheet of the exhaust collector.

Observe that in case of B13 installation an up draft system must be provided

Up draft system shall end 400 mm below the fat filter. The unit must be installed underneath a vented hood/ceiling.

By monitoring the flue gas evacuation it must be made sure, that the gas supply of the burner is only enabled in case the ventilation is ensured.

Required room volume see page 23

B13BS pic. 7

Fixed connection to chimney is permissible.

For calculating the necessary supply and exhaust air contact your local gas or responsible authority

Gas exhaust system

- Check that gas exhaust pipes are leak proof, in accordance with local regulations
- Waste gas pipes of aluminium or other materials which are not resistant to temperatures up to 400°C should not be used because of the high waste gas temperatures!

Draft diverter needed for B13 and B13BS pic. 8

The gas exhaust system connected to the draft diverter has to be designed in such a way that a constant draft will be maintained. In case of a back flow the safety temperature limiter (set to 103°C) of the draft diverter will disengage.

Gas connection / Gas consumption

Maintenance

- We recommend to service the gas units at least once a year in accordance with the specified standards.
- After maintenance or repair works the compensation hose of the gas valve has to be checked for tight fit.
- After maintenance or repair works a leak test of all gas components has to be carried out.

Gas consumption

Gas type	Required flow pressure	Wobbe index (15°C, 1013mbar) Wi	Wobbe index (15°C, 1013mbar) Ws	max. consumption on nominal heat load 6x1/1 GN	6x2/1 GN	10x1/1 GN
		MJ/m³	MJ/m³	13 kW	28 kW	22 kW
Nat. gas H G20	18-25 mbar	45,67	50,72	1,4 m³/h	3,05 m³/h	2,35 m³/h
Nat. gas L G25	20-30 mbar	37,38	41,52	1,63 m³/h	3,53 m³/h	2,76 m³/h
		MJ/m³	MJ/m³	14 kW	31 kW	24 kW
LPG G30	25-57,5 mbar	80,58	87,33	1,22 kg/h	2,66 kg/h	2,09 kg/h
		MJ/m³	MJ/m³	13 kW	28 kW	22 kW
LPG G31	25-57,5 mbar	74,75	81,19	1,08 kg/h	2,33 kg/h	1,84 kg/h

Gas type	Required flow pressure	Wobbe index (15°C, 1013mbar) Wi	Wobbe index (15°C, 1013mbar) Ws	max. consumption on nominal heat load 10x2/1 GN	20x1/1 GN	20x2/1 GN
		MJ/m³	MJ/m³	45 kW	44 kW	90 kW
Nat. gas H G20	18-25 mbar	45,67	50,72	4,87 m³/h	4,77 m³/h	9,86 m³/h
Nat. gas L G25	20-30 mbar	37,38	41,52	5,76 m³/h	5,58 m³/h	11,36 m³/h
		MJ/m³	MJ/m³	50 kW	48 kW	100 kW
LPG G30	25-57,5 mbar	80,58	87,33	4,31 kg/h	4,15 kg/h	8,56 kg/h
		MJ/m³	MJ/m³	45 kW	44 kW	90 kW
LPG G31	25-57,5 mbar	74,75	81,19	3,76 kg/h	3,69 kg/h	7,56 kg/h

Australian Supplement to Gas Installation

Unit size SCC_WE /CMP	61	62	101	102	201	202
Heat Load	47 MJ/h	101 MJ/h	79 MJ/h	162 MJ/h	158 MJ/h	324 MJ/h
Minimum inlet pressure NG	1.0 kPa	1.0 kPa	1.0 kPa	1.0 kPa	1.0 kPa	1.0 kPa
Minimum inlet pressure LPG	2.75 kPa	2.75 kPa	2.75 kPa	2.75 kPa	2.75 kPa	2.75 kPa

Note: Maximum inlet pressures for NG and LPG: 5kPa

Flue gas- and room volume (values are valid for single units)

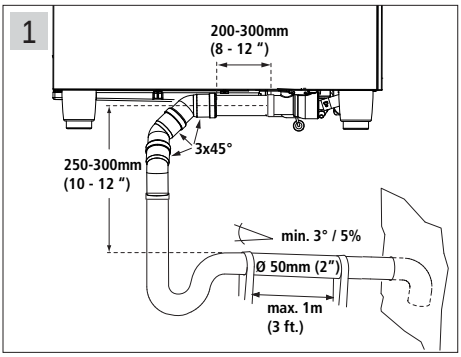
Free ventilation = Combustion air supply through windows and doors

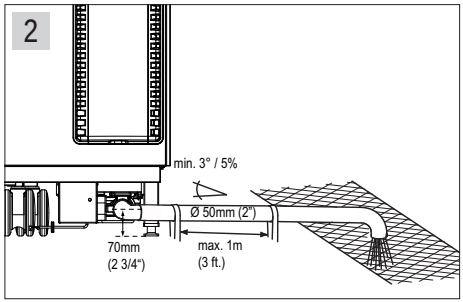
Permanent ventilation = Combustion air supply by two openings to the outside with a free cross section of 150 cm² (one opening near the ceiling, the other opening near the floor)

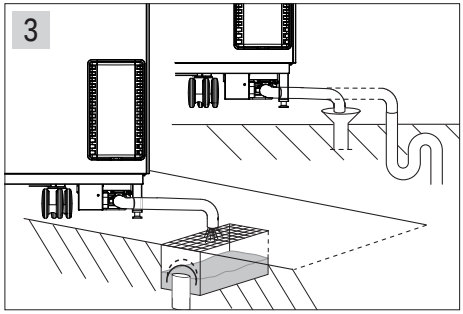
Attention: Data are calculated under German standards

Unit size	6x1/1GN	6x2/1GN	10x1/1GN	10x2/1GN	20x1/1GN	20x2/1GN
Room size free ventilation	52 m³	112 m³	88,0 m³	180 m³	176 m³	360 m³
Room size permanent ventilation	26,0 m³	56,0 m³	44,0 m³	90,0 m³	88,0 m³	180 m³
Combustion air supply	19 m³/h	45 m³/h	35 m³/h	72 m³/h	70 m³/h	144 m³/h
Flue gas volume	38 m³/h	108 m³/h	78 m³/h	180 m³/h	150 m³/h	350 m³/h
Flue gas temperature	350°C	520°C	470°C	590°C	430°C	520°C

Drain connection







Option table models:
Using 110 mm (approx. 4") legs for extended space underneath unit. Height adjustable transport trolley, see page 25

Option floor models:
Using leg extension for more space underneath unit. Install height extension for mobile oven rack see page 26

•The appliance complies with the relevant regulations (EN 1717, SVGW, KIWA, WRAS)

Attention
Use pips capable of withstanding steam temperature, don't use hoses
• Drain/water connection set
Art. no.: 60.70.464
• Welding of drain pipe to the units drain is not permissible (welding can cause damages to the unit)
• **DN 50 pipe** with constant gradient (min. 5% or 3°); do not reduce the diameter of the pipe.
• Fixed connection with odour lock permissible; a ventilated drain line is integral to the appliance pic. 1,2
• Where there is an existing floor drain without air trap, a clear outflow of 2 cm (1") must be provided. pic. 3
• We recommend to connect every unit to a separate drain.
• We recommend to install a syphon in the drain system of the unit, to reach an optimized energy consumption.
• Units 6x1/1GN up to 10x2/1GN can be connected either to a wall drain or to a floor drain
• Units 20x1/1GN or 20x2/1GN can only be connected to a floor drain.

Option:
For reduction of steam escape via the ventilation pipe a condensate collector or an additional ascending pipe can be used. See pages 26/27

Note drainage dimensions: short-term pumped discharge volume of steam generator 0.7 l/sec (0,18 gal/sec.)
• Average waste water temperature: 65°C
• Applicable standard: DIN 1986, Part 1
Attention: The centre height drain pipe of table models is 88 mm and floor models is 70 mm.

Ventilation, technical data, heat emission

Ventilation:

An exhaust hood is not essential. If one is fitted, bear the following points in mind:

- Comply with all local regulations and standards;
- The hood should project 300-500 mm (1-1,6 ft) in front of the appliance;
- Install a grease filter in the projecting part of the hood;
- An exhaust hood is available as an option for 6x1/1 - 20x1/1 GN units.
- For installation of the hood, please follow the instruction of the corresponding installation manual
- In case the VarioSmoker is used in the unit, then the unit has to be installed under hood in accordance with local and on state jurisdictions

DANGER

Flue gases (CO and CO_2)
Suffocation hazard
The rooms in which these appliances are installed must be well ventilated, in order to prevent an unacceptable build-up of harmful flue gases.

Technical data:

Noise emission level: <70dBA Hoseproofness: IPX5

Heat emission:

Electrical units:	6x1/1 GN	6x2/1GN	10x1/1 GN	10x2/1 GN	20x1/1 GN	20x2/1 GN
latent:	2.143 kJ/h	4.167 kJ/h	3.529 kJ/h	6.667 kJ/h	7.200 kJ/h	12.500 kJ/h
sensible:	2.727 kJ/h	5.000 kJ/h	4.615 kJ/h	9.474 kJ/h	9.000 kJ/h	14.286 kJ/h

Gas units:	6x1/1 GN	6x2/1GN	10x1/1 GN	10x2/1 GN	20x1/1 GN	20x2/1 GN
latent:	2.143 kJ/h	4.167 kJ/h	3.529 kJ/h	6.667 kJ/h	7.200 kJ/h	11.583 kJ/H
sensible:	2.571 kJ/h	5.000 kJ/h	4.286 kJ/h	9.231 kJ/h	8.780 kJ/h	13.636 kJ/H

Weight of electric units:

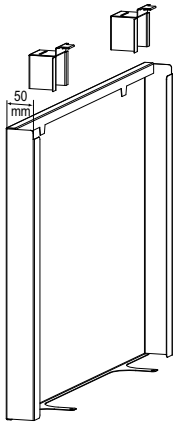
SCC units:		CM units without	
6 x 1/1 GN: 112,5 kg	6 x 2/1 GN: 148,5 kg	6 x 1/1 GN: 105,5 kg	6 x 2/1 GN: 141,5 kg
10 x 1/1 GN: 132,5 kg	10 x 2/1 GN: 173,0 kg	10 x 1/1 GN: 125,5 kg	10 x 2/1 GN: 166,0 kg
20 x 1/1 GN: 267,0 kg	20 x 2/1 GN: 346,0 kg	20 x 1/1 GN: 259,0 kg	20 x 2/1 GN: 338,0 kg
Mobile:			
20 x 1/1 GN: 275,5 kg	20 x 2/1 GN: 352,0 kg	20 x 1/1 GN: 269,0 kg	20 x 2/1 GN: 346,0 kg

Weight of gas units:

SCC units:		CM units without	
6 x 1/1 GN: 127,0 kg	6 x 2/1 GN: 169,5 kg	6 x 1/1 GN: 121,0 kg	6 x 2/1 GN: 163,5 kg
10 x 1/1 GN: 149,5 kg	10 x 2/1 GN: 203,5 kg	10 x 1/1 GN: 143,5 kg	10 x 2/1 GN: 197,5 kg
20 x 1/1 GN: 297,5 kg	20 x 2/1 GN: 374,5 kg	20 x 1/1 GN: 288,0 kg	20 x 2/1 GN: 364,5 kg
Mobile:			
20 x 1/1 GN: 303,5 kg	20 x 2/1 GN: 390,5 kg	20 x 1/1 GN: 278,5 kg	20 x 2/1 GN: 389,5 kg

Right of technical modifications reserved.

1



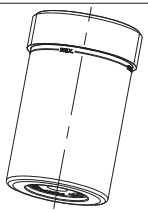
Heat shield left and right

If the minimum required distance to heat sources on the left or right side (right side only 6x1/1 GN and 10x1/1 GN) can not be maintained a heat shield will help to reduce the heat stress to the unit pic 1

Unit size:

6x1/1GN	Art.-No.: 60.70.390 left
6x1/1GN	Art.-No.: 60.70.736 right
10x1/1GN	Art.-No.: 60.70.391 left
10x1/1GN	Art.-No.: 60.70.743 right
6x2/1GN	Art.-No.: 60.70.392
10x2/1GN	Art.-No.: 60.70.393
20x1/1GN	Art.-No.: 60.70.394
20x2/1GN	Art.-No.: 60.70.395

2



Height extension of table units.

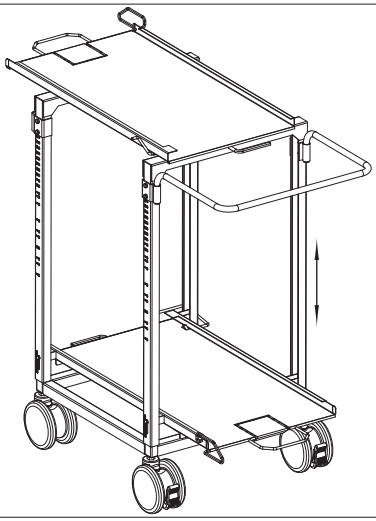
(6x1/1 GN up to 10x2/1GN)

Should the distance between floor and bottom of table units be too low (e.g. when installing combi duo), then the standard lower parts of the legs can be replaced by longer legs (110 mm).

Art.-No.: 12.00.224 pic. 2

Attention: In this case the height of the upper rail in the cooking cabinet exceeds 1600 mm (63")

3



When using mobile oven racks and transport trolleys the height difference can be compensated by a height adjustable
transport trolley. pic. 3

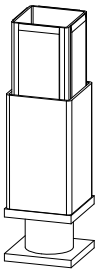
Height adjustable trolley:

Unit size: Art.-No.:

6x1/1 and 10x1/1 GN 60.60.188

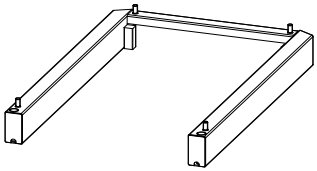
6x2/1 and 10x2/1 GN 60.70.160

1



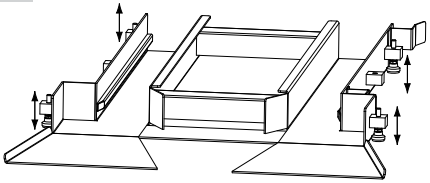
Foot extension for floor units
Art.-No.: 60.21.179
Should the distance be too low between floor and bottom of floor units , foot extensions for floor units can be used pic 1
Attention: In this case the height of the upper rail exceeds 1600 mm (63”).

2



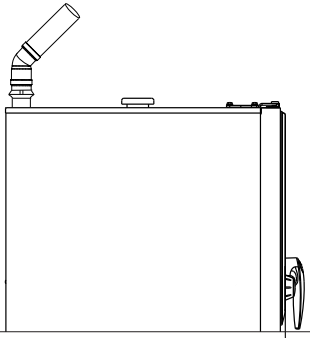
When using these foot extensions a height compensation of the mobile oven rack must be carried out by adding an additional frame. pic. 2
20x1/1GN Art.-No.: 60.21.184
20x2/1GN Art.-No.: 60.22.184

3



Ramp for mobile oven rack floor models
If the floor underneath the unit is not level the mobile oven rack ramp can level out this uneveness. The adjustment range of the legs is between +/- 10 mm . pic. 3
20x1/1GN Art.-No.: 60.21.080
20x2/1GN Art.-No.: 60.22.181

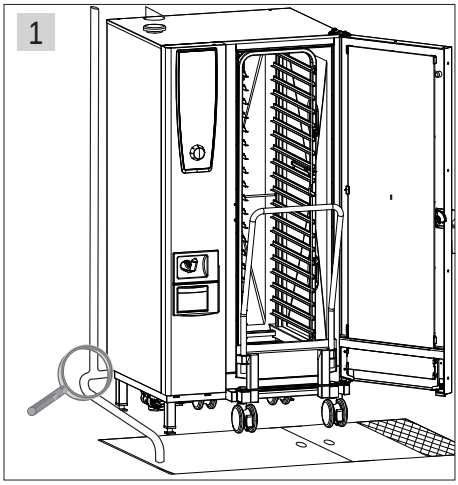
4

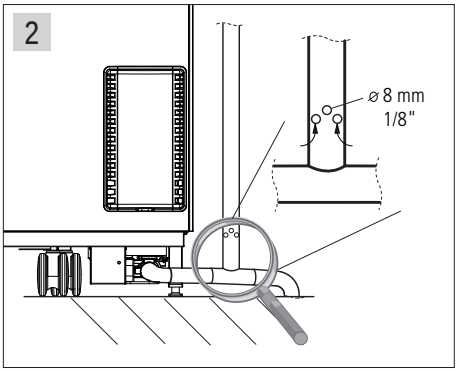


Condensation breaker
Attention:
Extending the unit's vent pipe without using a condensation breaker can cause malfunction.

By installing the condensation breaker together with the enclosed pipes it is possible to guide the steam to an uncritical area or to the suction area of a suction system (e.g.vent ceiling) pic 4
The kits contain the following:
Condensation breaker (depends on unit size)
Elbow DN75 with 45° angle (stainless steel)
Pipe DN75, 250 mm long (stainless steel)

Unit size:	Art. Number
61, 101, 062:	60.72.591
102:	60.72.592
201, 202:	60.72.593





Also for reducing the steam escape at the drain pipe an additional vent pipe can be fitted to the drain pipe. In this extra vent pipe holes must be drilled where air is sucked in and condensates the steam pic 1/2

Interfaces
a) Optional all CombiMaster® Plus can be retrofitted with an Ethernet interface

b) SelfCookingCenter® whitefficiency are equipped with an Ethernet interface as a standard.

Show mode units (operator panel active, heating and fan motor are continuously off)
For converting units into show mode units a modification instruction is available at RATIONAL

Output for connecting an external signal appliance (optional only electric units)
If the unit is ordered with option „external signal appliance“, in the unit (electric compartment) a 230V-output is provided. This output is controlled parallel to the loud speaker respectively buzzer of the unit. For connection of the external signal appliance the additional terminals grey (phase), blue (neutral) and yellow/green (ground) are installed in the electric compartment, also refer to wiring diagram of the unit.

Attention:
External signal appliances must not be fixed on the unit.

Connected loads in accordance to VDE Guideline

SCC_WE, CM_P Electric units:

	Power kW						Electricity consumption A					
	6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1	6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1
3 AC 200V	10,1	20,7	17,2	34	34,3	62,3	29,8	59,1	49,5	97,6	99	182
3 AC 230V	11,2	22,3	18,6	36,7	37	67,3	27,9	55,5	46,5	91,6	92,9	168
3 NAC 400V	11	22,3	18,6	36,7	37	65,5	16	32,2	26,7	52,7	53,4	95,5
3 AC 400V	11	22,3	18,6	36,7	37	65,5	16	32,2	26,7	52,7	53,4	95,5
3 NAC 415V	11,2	24,2	20,2	39,9	39,9	70,7	16,7	33,3	28	55,1	55,1	99,5
3 AC 440V	11,2	22,3	18,6	36,7	37	67,3	14,6	29	24,3	47,9	48,5	88,3
3 AC 480V	11,2	22,3	18,6	36,7	37	67,3	13,4	26,7	22,3	44	44,7	80,9
1 NAC 230V	11,2						48.3					
1 NAC 240V	12						50					
2 AC 230V	11,2						48.3					
2 AC 240V	11,2						47					

	Fuse protection = A					
	6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1
3 AC 200V	35	63	63	100	100	200
3 AC 230V	32	63	63	100	100	200
3 NAC 400V	16	32	32	63	63	100
3 AC 400V	16	32	32	63	63	100
3 NAC 415V	16	32	32	63	63	100
3 AC 440V	16	32	32	63	63	100
3 AC 480V	15	32	25	50	50	100
1 NAC 230V	50					
1 NAC 240V	50					
2 AC 230V	50					
2 AC 240V	50					

SCC_WE, CM_P Gas units:

	Power kW						Electricity consumption A					
	6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1	6x1/1	6x2/1	10x1/1	10x2/1	20x1/1	20x2/1
1NAC 100V	0,4		0,5		0,95		4		5		9,5	
1NAC 110V	0,4		0,5		0,95		3,7		4,5		8,7	
1NAC 120V	0,4		0,5		0,95		3,4		4,2		7,9	
1NAC 127V	0,4		0,5		0,95		3,2		4		7,5	
1NAC 220V	0,4	0,77	0,5	0,8	0,95	1,6	1,8	3,5	2,3	3,7	4,3	7,3
1NAC 230V	0,4	0,77	0,5	0,8	0,95	1,6	1,74	3,35	2,17	3,48	4,13	6,96
1NAC 240V	0,4	0,77	0,5	0,8	0,95	1,6	1,66	3,21	2,1	3,33	3,96	6,66
2 AC 200V	0,4	0,77	0,5	0,8	0,95	1,6	2	3.85	2,5	4,0	4,75	8
2 AC 220V	0,4	0,77	0,5	0,8	0,95	1,6	1,8	3,5	2,3	3,7	4,3	7,3
2 AC 230V	0,4	0,77	0,5	0,8	0,95	1,6	1,74	3,35	2,17	3,48	4,13	6,96
2 AC 240V	0,4	0,77	0,5	0,8	0,95	1,6	1,66	3,21	2,1	3,33	3,96	6,66

The maximum allowable tolerance of the supply voltage (supply voltage see name plate) is in the range of -15% up to +10%

Conversion tables

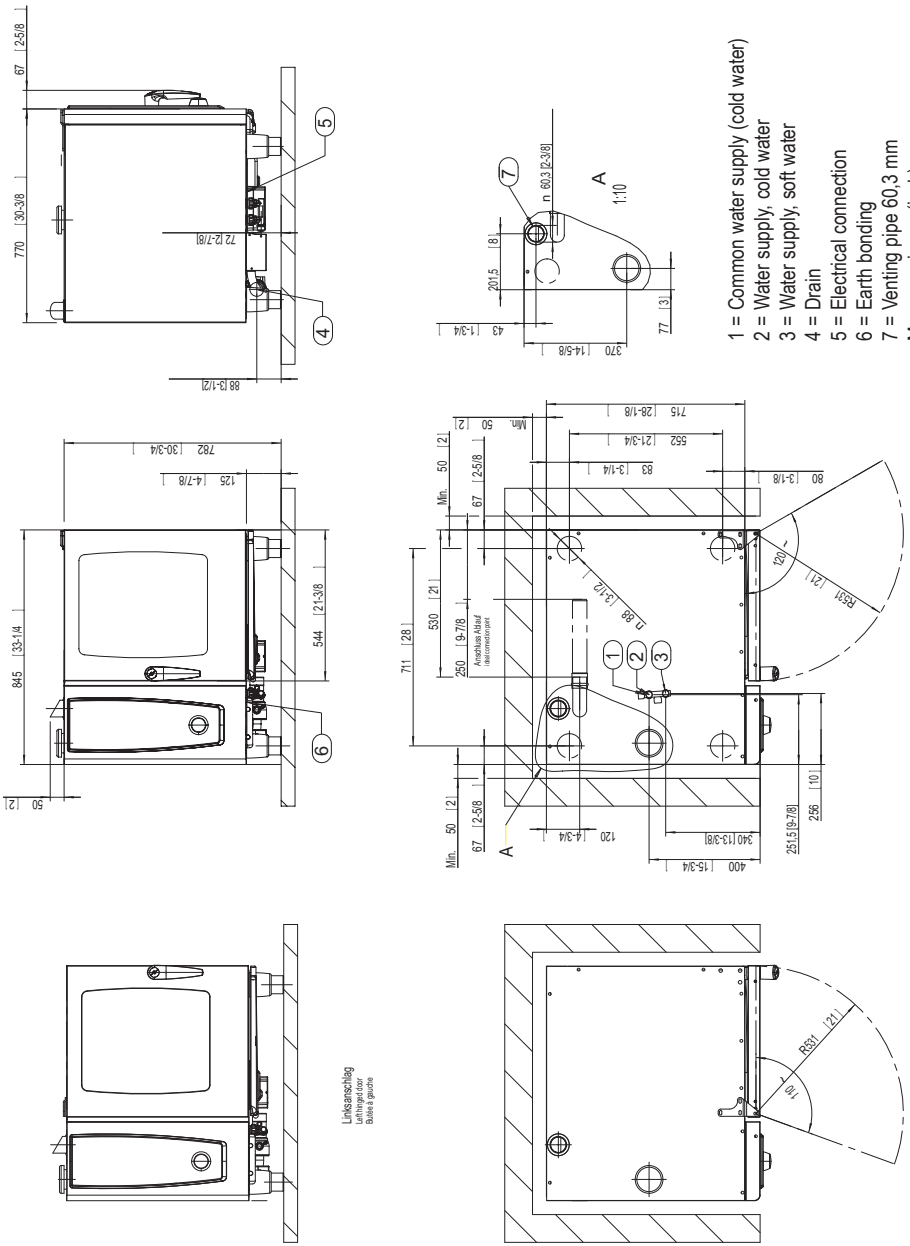
	°dH	°f	°e	ppm	mmol/l	gr/gal(US)	mval/kg
1 °dH	1	1,79	1,25	17,9	0,1783	1,044	0,357
1 °f	0,56	1	0,70	10,0	0,1	0,584	0,2
1 °e	0,8	1,43	1	14,32	0,14	0,84	0,286
1 ppm	0,056	0,1	0,07	1	0,01	0,0584	0,02
1 mmol/l	5,6	0,001	0,0007	100	1	0,00058	2
1 gr/gal (US)	0,96	1,71	1,20	17,1	0,171	1	0,342
1 mval/kg	2,8	5,0	3,5	50	0,5	2,922	1

1 °dH:	10,00 mg CaO/kg	1 ppm :	0,56 mg CaO/kg	1 gr/gal :	9,60 mg CaO/kg
(Germany)	17,86 mg $CaCO_3$/kg	(USA)	1,0 mg $CaCO_3$/kg	(USA)	64,8 mg $CaCO_3$/gal
	7,14 mg Ca_2^+/kg		0,40 mg Ca_2^+/kg		17,11 mg $CaCO_3$/kg
1 °f :	5,60 mg CaO/kg	1 mmol/l :	56,00 mg CaO/kg		6,85 mg Ca_2^+/kg
(France)	10,0 mg $CaCO_3$/kg	(chem. conz.)	100,0 mg $CaCO_3$/kg		
	4,00 mg Ca_2^+/kg		39,98 mg Ca_2^+/kg		
1 °e :	8,01 mg CaO/kg	1 mval/kg :	28,00 mg CaO/kg		
(GB)	14,3 mg $CaCO_3$/kg	(Milliäquivalent)	50,0 mg $CaCO_3$/kg		
	5,72 mg Ca_2^+/kg		19,99 mg Ca_2^+/kg		

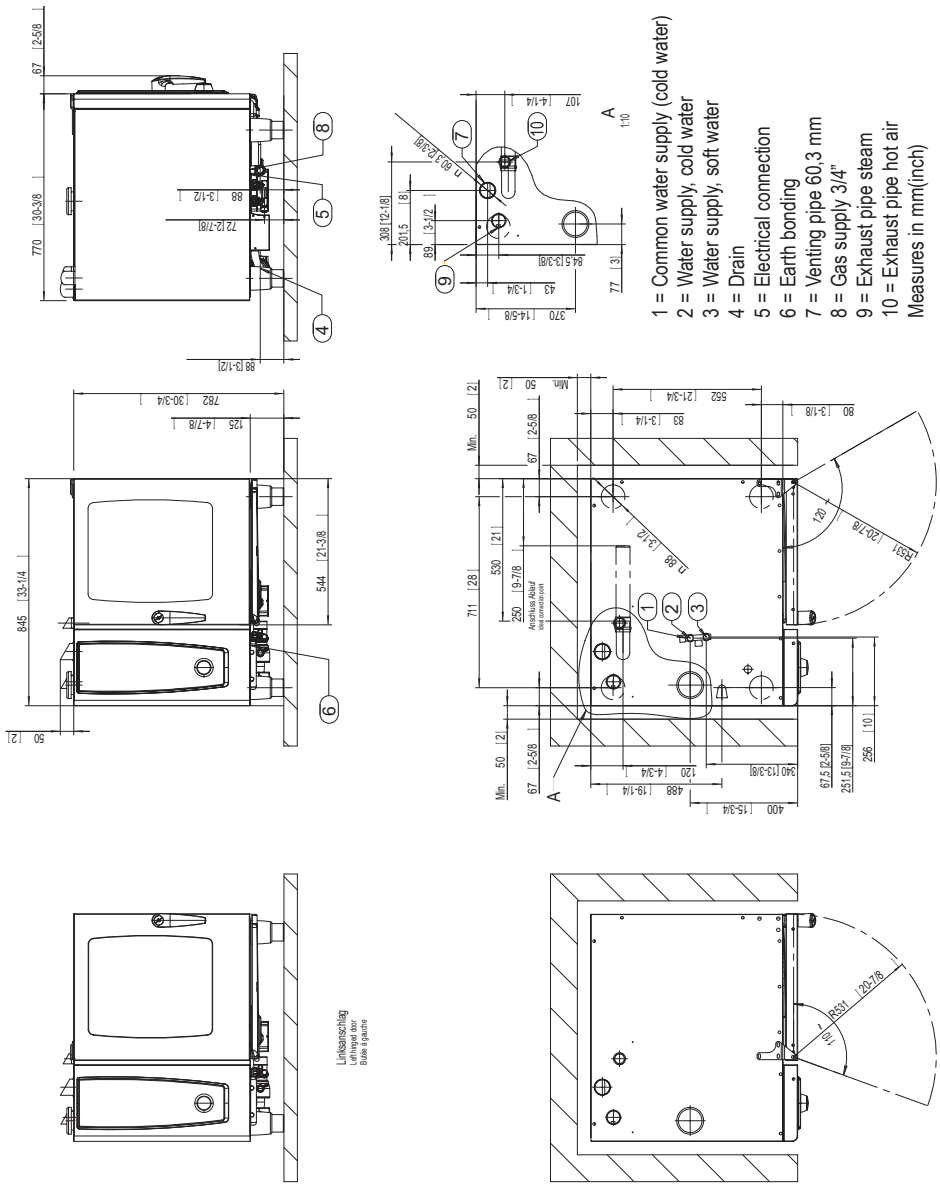
kPa	mbar	psi	inch/wc
0,1	1	0,0147	0,4014
0,2	2	0,0294	0,8028
0,3	3	0,0441	1,2042
0,4	4	0,0588	1,6056
0,5	5	0,0735	2,0070
0,6	6	0,0882	2,4084
0,7	7	0,1029	2,8098
0,8	8	0,1176	3,2112
0,9	9	0,1323	3,6126
1	10	0,147	4,0140
1,2	12	0,1764	4,8168
1,4	14	0,2058	5,6196
1,6	16	0,2352	6,4224
1,8	18	0,2646	7,2252
2	20	0,294	8,0280
2,5	25	0,3675	10,0350
3	30	0,441	12,0420
3,5	35	0,5145	14,0490

kPa	mbar	psi	inch/wc
4	40	0,588	16,0560
4,5	45	0,6615	18,0630
5	50	0,735	20,0700
5,5	55	0,8085	22,0770
6	60	0,882	24,0840
6,5	65	0,9555	26,0910
7	70	1,029	28,0980
7,5	75	1,1025	30,1050
8	80	1,176	32,1120
8,5	85	1,2495	34,1190
9	90	1,323	36,1260
9,5	95	1,3965	38,1330
10	100	1,47	40,1400
20	200	2,94	80,2800
30	300	4,41	120,4200
40	400	5,88	160,5600
50	500	7,35	200,7000
100	1000	14,7	401,4000

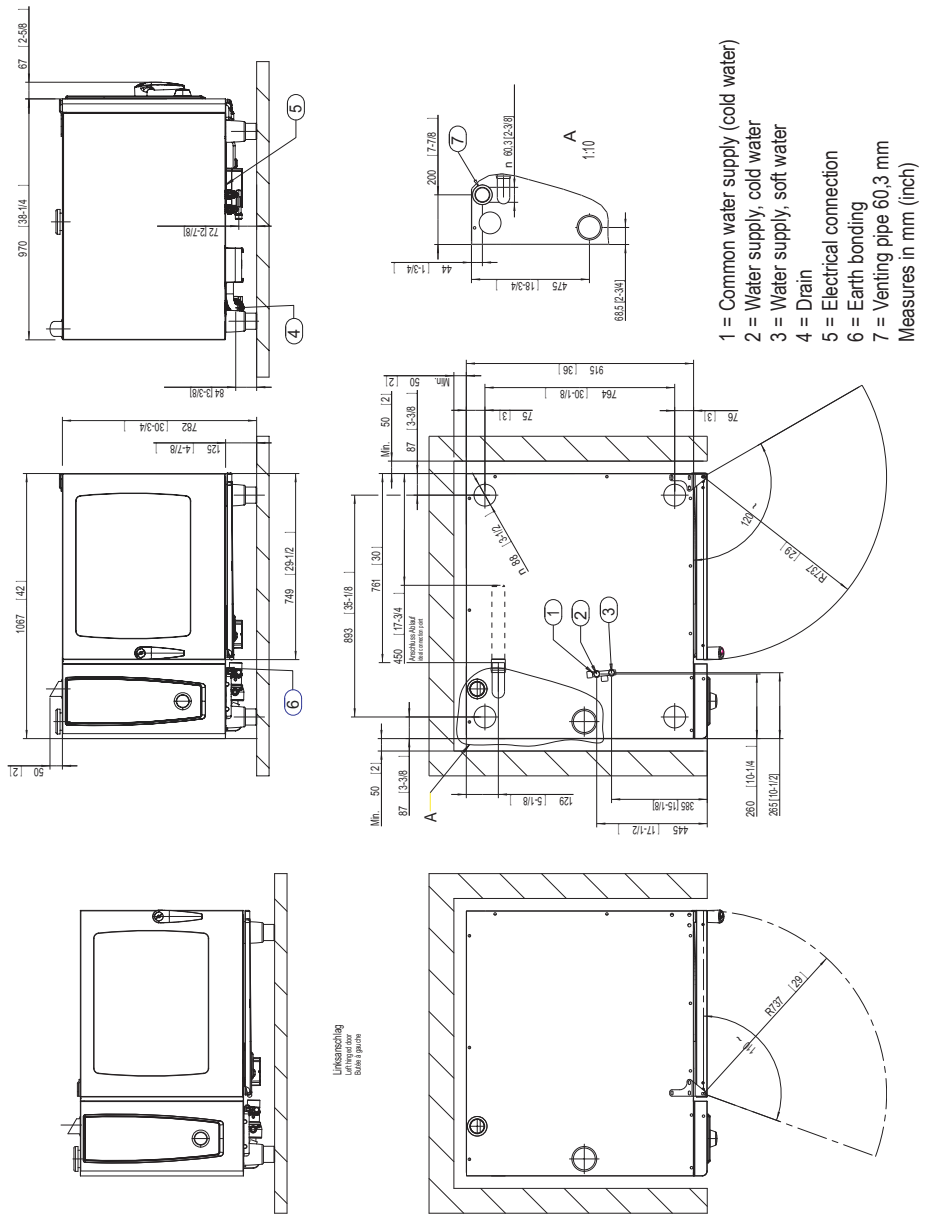
Schematic drawing 6x1/1 GN Electric


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
Measures in mm(inch)
Linksanschlag
Left hinged door
Butée à gauche

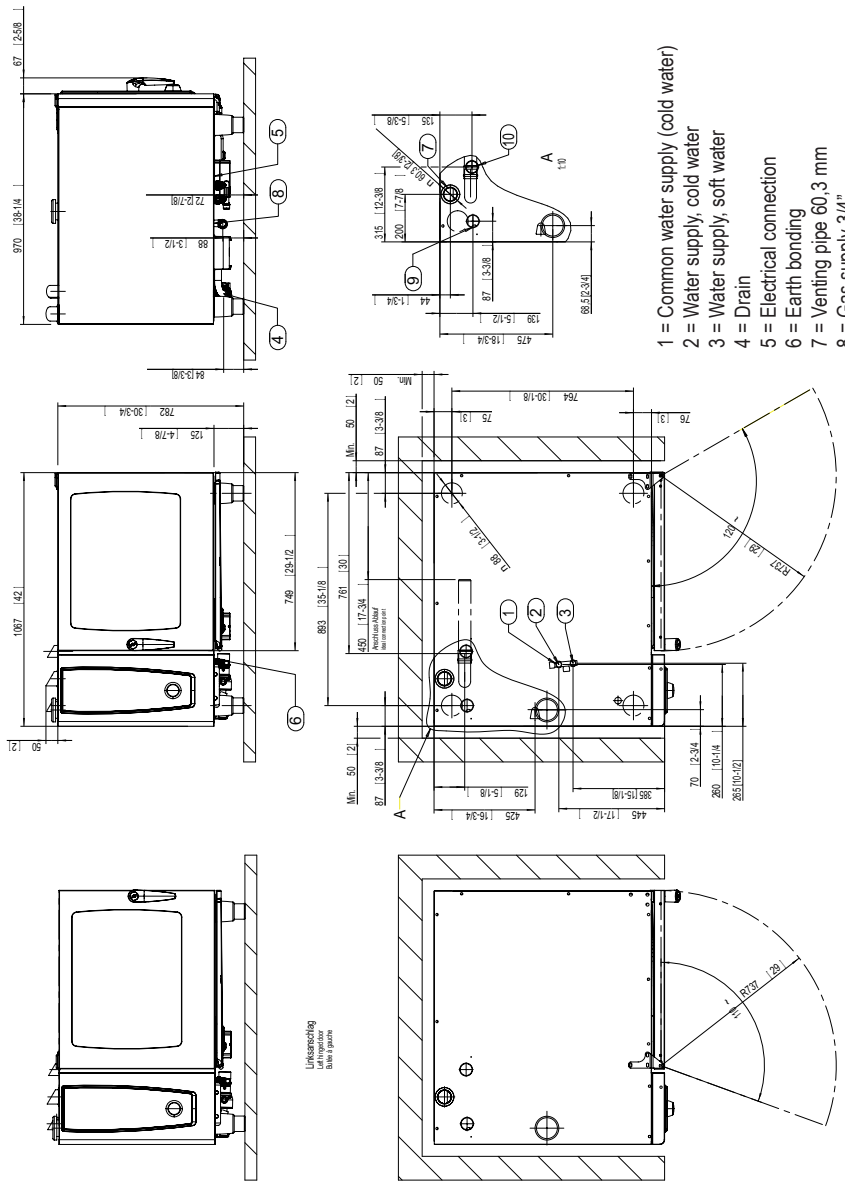
Schematic drawing 6x1/1 GN Gas


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
8 = Gas supply 3/4"
9 = Exhaust pipe steam
10 = Exhaust pipe hot air
Measures in mm(inch)
Linksanschlag
Left hinged door
Butée à gauche

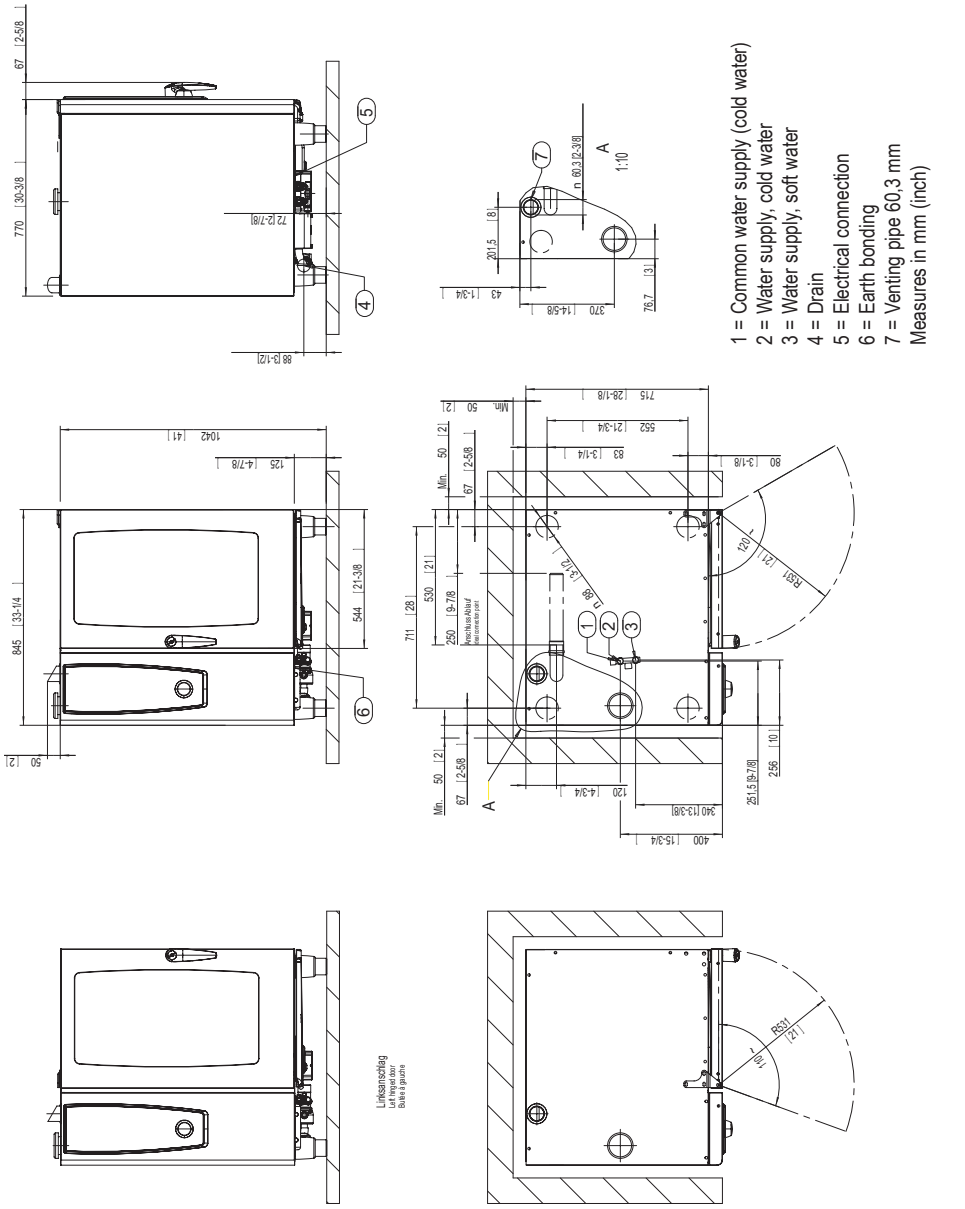
Schematic drawing 6x2/1 GN Electric


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
Measures in mm (inch)
Linksanschlag
Left hinged door
Butée à gauche

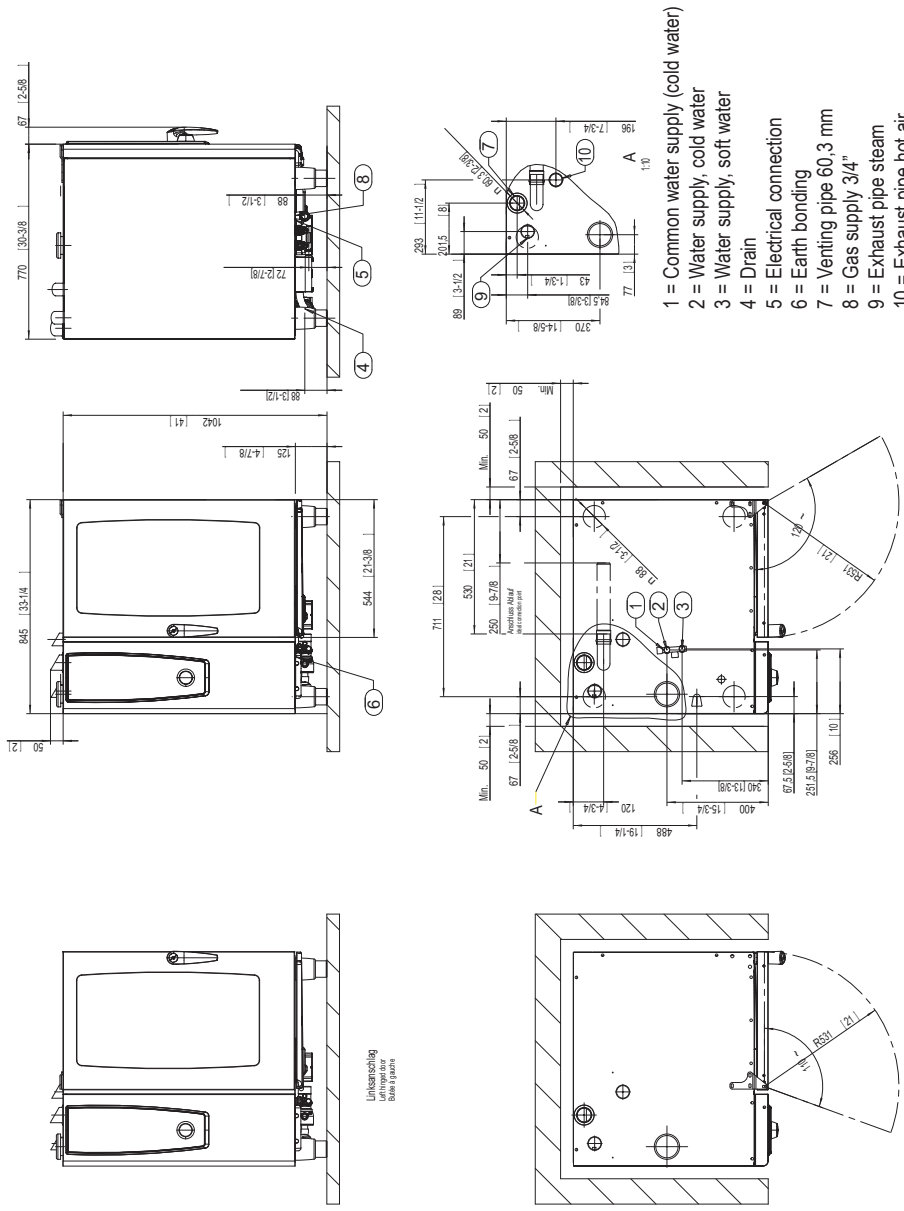
Schematic drawing 6x2/1 GN Gas


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
8 = Gas supply 3/4"
9 = Exhaust pipe steam
10 = Exhaust pipe hot air
Measures in mm (inch)

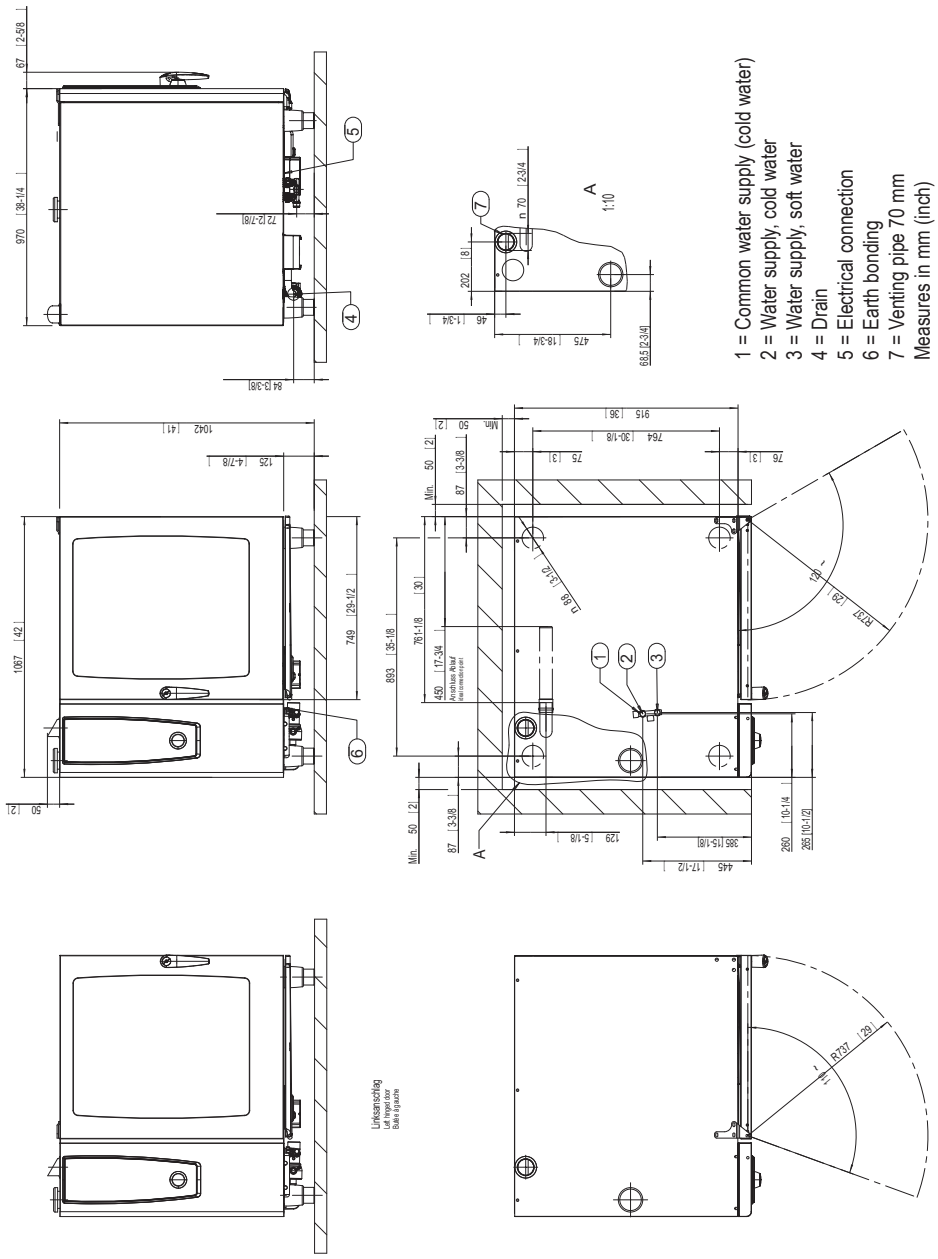
Schematic drawing 10x1/1 GN Electric


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
Measures in mm (inch)
Linksanschlag
Left hinged door
Butée à gauche

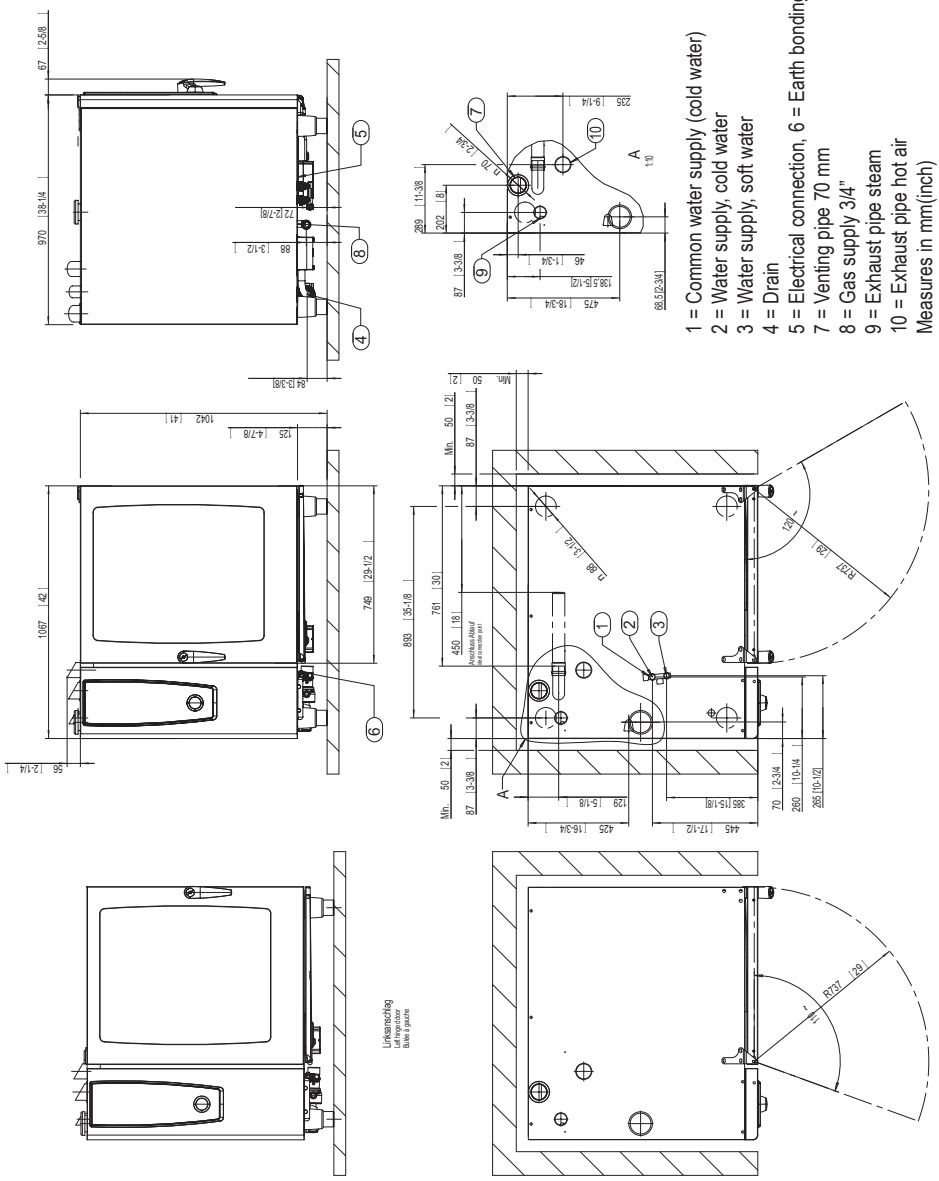
Schematic drawing 10x1/1 GN Gas


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 60,3 mm
8 = Gas supply 3/4"
9 = Exhaust pipe steam
10 = Exhaust pipe hot air
Measures in mm (inch)
Linksanschlag
Left hinged door
Butée à gauche

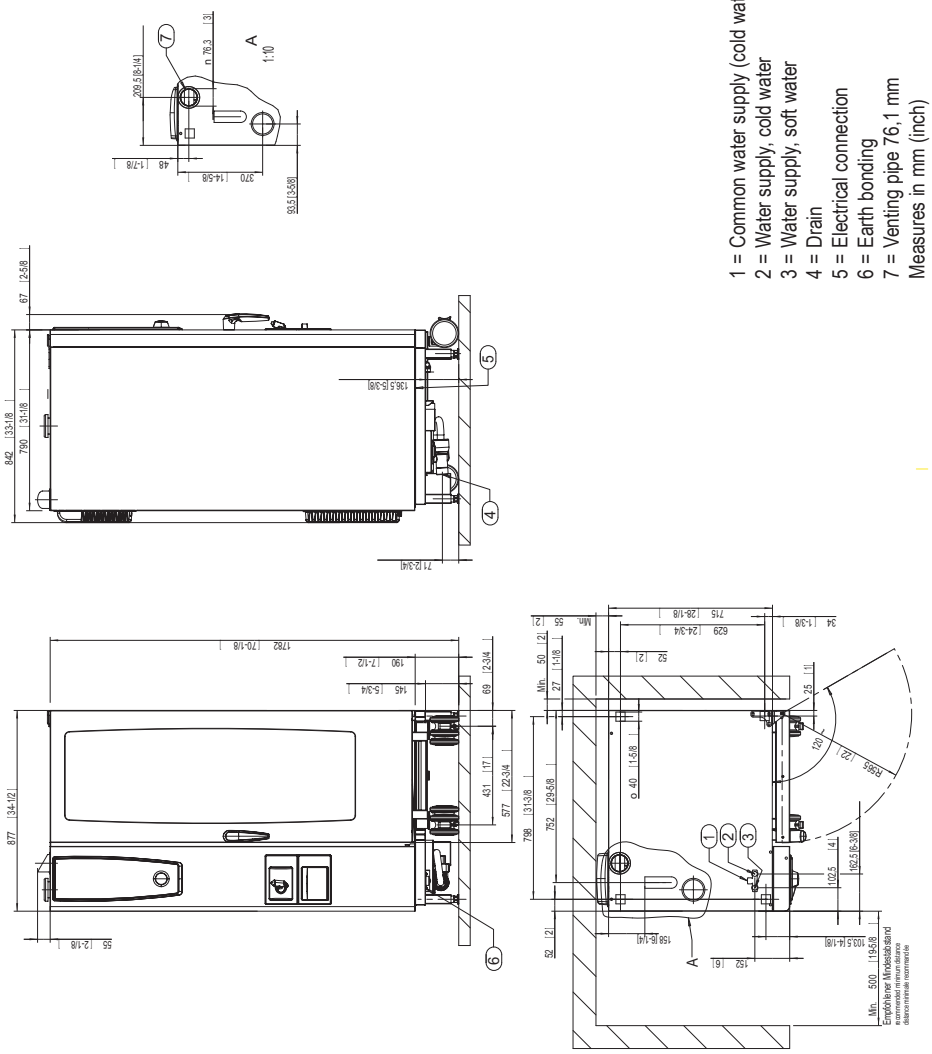
Schematic drawing 10x2/1 GN Electric


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 70 mm
Measures in mm (inch)
Linksanschlag
Left hinged door
Bisagra izquierda

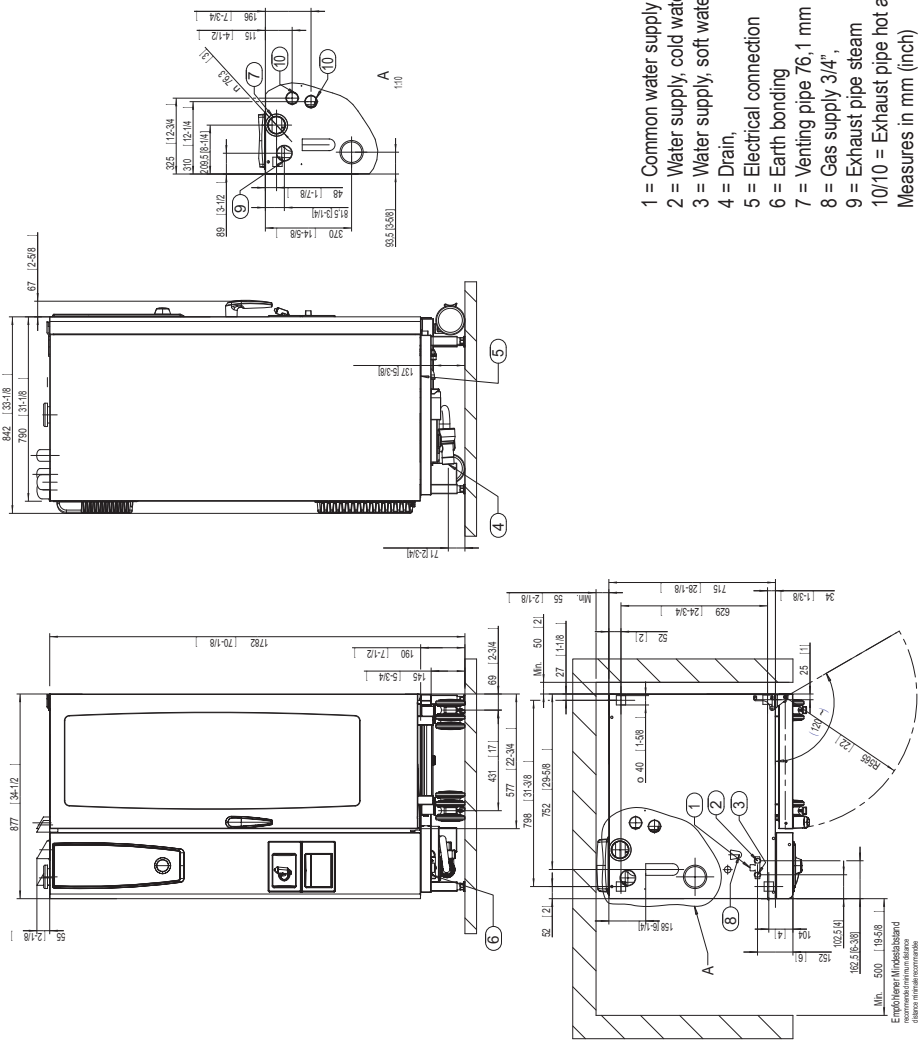
Schematic drawing 10x2/1 GN Gas


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection, 6 = Earth bonding
7 = Venting pipe 70 mm
8 = Gas supply 3/4"
9 = Exhaust pipe steam
10 = Exhaust pipe hot air
Measures in mm(inch)

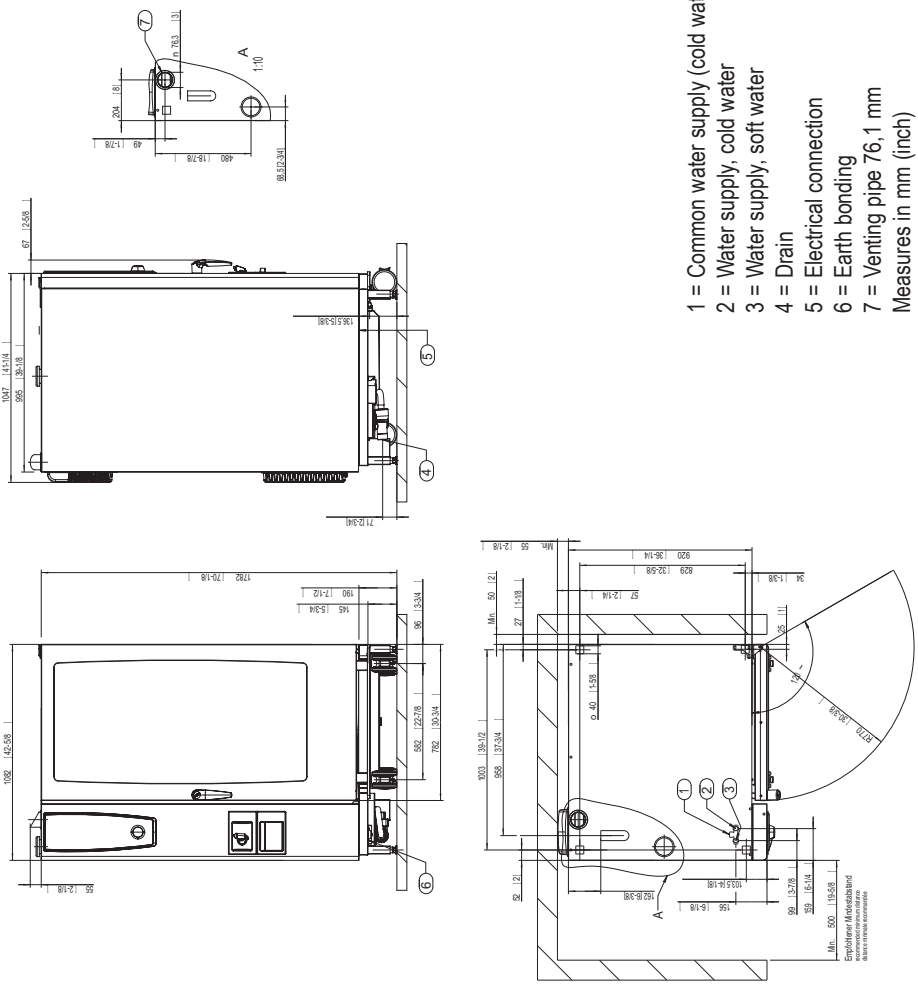
Schematic drawing 20x1/1 GN Electric



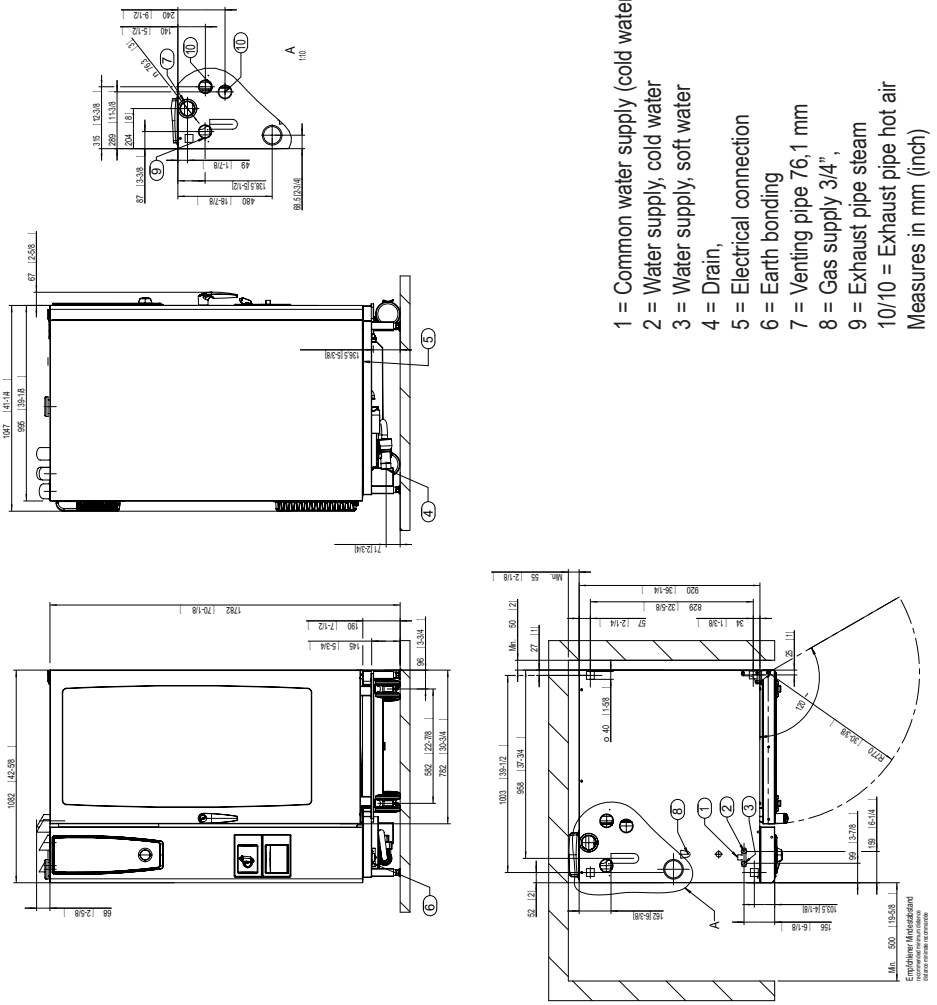
Schematic drawing 20x1/1 GN Gas


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain,
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 76,1 mm
8 = Gas supply 3/4",
9 = Exhaust pipe steam
10/10 = Exhaust pipe hot air
Measures in mm (inch)
Empfohlener Mindestabstand
recommended minimum distance
distance minimale recommandée

Schematic drawing 20x2/1 GN Electric


1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 76,1 mm
Measures in mm (inch)

Schematic drawing 20x2/1 GN Gas



1 = Common water supply (cold water)
2 = Water supply, cold water
3 = Water supply, soft water
4 = Drain,
5 = Electrical connection
6 = Earth bonding
7 = Venting pipe 76,1 mm
8 = Gas supply 3/4",
9 = Exhaust pipe steam
10/10 = Exhaust pipe hot air
Measures in mm (inch)